

February 1989

The National Locksmith®



Electronic Locking
Products

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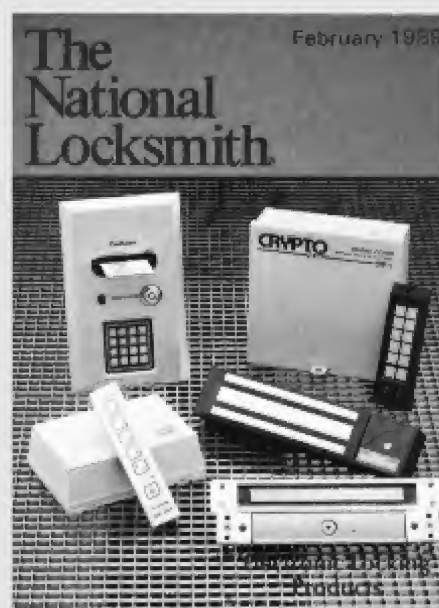
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On The Cover

This month's cover features products from the following manufacturers: (clockwise from upper left) Continental Instruments; MRL, Inc.; Security Door Controls; Locknetics Security Engineering; and Securitron. (See special product review beginning on page 31.) Photo by Bakstad Photographics.

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Editor/Publisher Marc Goldberg
Managing Editor Sandy Kucharski
Editorial Assistant Debbie Schertzing
Circulation Manager Barbara Coulam
Production Consultant Marian Raney
Technical Editor Robert Sieveking
Technical Writers E. Lee Griggs, Ed Hill, Dale Libby, Joseph Locke, Regis McCafferty, Dave McOmie, Rick Ohmit, Don O'Shall, Jack Roberts, Shirl Schamp, Steve Spiwak
Advertising Sales Thomas Mlodoch
Technical Advisors Richard Bushe, Robert Robinson, Sean DeForrest, Bert Michaels



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Commentary

We've Moved!

The National Locksmith has found a new home! We have purchased a 5,000 square foot, all brick building to house our expanding company. We had occupied our former location for better than seven years, renting a 2,500 square foot unit. However, we outgrew that space quite a while ago. Our new building will allow us to serve you better since all our operations will run smoother.



Our new home at 1533 Burgundy Parkway, Streamwood, IL.

One of the big reasons for the change was our increased need for warehousing and storage space. Since we added code books to our product line, our warehousing needs have more than tripled. Our new address, now effective, is 1533 Burgundy Parkway, Streamwood, IL 60107. The new building is located only about a block from our former address. Therefore, we were able to save our phone numbers and continue using them. Our number is (312) 837-2044. Our Fax number is (312) 837-1210. Please feel free to visit us whenever you're in the Chicago area.

It is unfortunate to see that one of the better regional locksmith associations may soon close its doors. The Association of Ontario Locksmiths (TAOL) is entertaining a motion to dissolve the organization. The reason appears to be the apathy of the membership. Here's a quote from President Pro Tem Ron McGuire's statement in the TAOL newsletter: *"On Sunday, February 5th, I will introduce the motion to dissolve the Association because it has obviously outlived its usefulness. There are just too many takers and not enough givers. I expect there will be a few who want to save it, but there will probably be more who want to divide the money instead of seeing it go to charity. These will certainly be the takers."*

Not only has the problem been in attracting enough members to attend meetings. But also, there are not enough volunteers to run for office so that the existing positions can be filled. Only six official positions are filled out of eleven. This amazes me considering that the membership totals over 300 locksmiths. Plus the association has put on a very successful convention every year, one of the best in North America.

I am sure that there are associations in America facing the same problems as our Canadian friends. I would sure hate to see such a good organization go down the tubes. These are the times when the locksmith needs more organized effort, not less. I hope TAOL will work out their problems without dissolving. But just the few dedicated workers they now have won't be enough. All associations are in danger if TAOL can fold. Learn the lesson, and take part in our associations and their activities. Run for office; volunteer to help. Otherwise we'll turn the clock back thirty years to where one locksmith wouldn't talk to another.

It saddens me to report the death of Fern A. Goldberg, wife of Barney Goldberg, long time industry representative. Fern was also my step-mother and my friend. She passed away on December 7, 1988. Fern will be sorely missed.



Marc Goldberg
Editor/Publisher

February 5

Letters

Comments, Suggestions and Criticisms

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and lengths. Please address your comments, praise, or criticism to: Editor, The National Locksmith, 698 Bonded Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

DeForrest's Business Series Applauded

I would like to publicly congratulate Sean DeForrest on his recent series of articles in *The National Locksmith*. He was very much "on target" with his comments.

If the locksmith will not only read, but study what Sean had to say in this series and also put it into practice he will be a far better businessman and have a much more profitable business than he currently has.

Sean has a keen insight into what must be done in our industry. I encourage you as editor of *The National Locksmith* to solicit more writings from Sean. This is the type of article that makes *The National Locksmith* an outstanding trade magazine.

D. Viri Mullins
President
Armstrong's Lock & Supply, Inc.
Georgia

Locksmith Learns New Trick

What is rather interesting about locksmithing is that just about the time you think you know all there is to know about a particular aspect of it, you run into something that makes you stop and think and realize that you've still got more to learn.

How much can go wrong in a simple mortise cylinder? In this case it's an institutional user whose complaint was that the key would not enter the cylinder.

Since it was about an hour driving time before I got there, one of the personnel had "made" their key enter and lubricated the lock with WD40. Upon disassembling the lock, there appeared to be no reason it was not fully functional. However, two things were immediately apparent to me. First, it was one of those master keys that I perceive resembles part of a bobby pin rather than a key.

Second, there was a Schlage #2 master pin in the first cylinder chamber. After putting it back together, although the lock functioned, it felt glitchy and I could see that the young lady who reported the trouble to me was still having trouble. I took it all apart again and, using my high power eyeloop, I noticed scarring at the edge of the #1 chamber. At this point I decided to side circuit the whole prob-

lem and pulled out one of my new cylinders to fit a Schlage C keyway.

Upon setting up the code in the new cylinder, I found that the #1 master pin was protruding halfway out of the cylinder and felt that using a new cylinder would not work for this reason. By this time it was 5 p.m. and the young lady who reported the trouble was ready to leave. I could sense she was just waiting for me to finish the job.

So I went back to their original cylinder. I smoothed out the scar on the edge of the cylinder chamber with a fine emery paper, dumped all the pins and rekeyed the lock to the master and change key. I put it back together and it worked smoothly. I then collected my check and left.

On the long trip back through the desert, it finally hit me. One thing I remembered the young lady mentioning was that she felt that someone's key on the night shift was causing the problem.

Here is my assessment of the cause. Somebody's key was miscut enough to raise that #2 master pin high enough to cause it to jam and had done so to the point where it had jammed itself out of the chamber, which caused the scarring I saw with my high power loop. Part of the master pin was now firmly jammed to the side of the chamber, trapped between the key plug and the cylinder,

Continued on page 100



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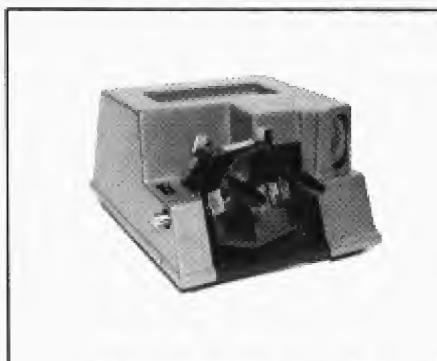
First Prize



HPC Bravo

The two speed motor cuts brass or steel. The 4-way vise jaws securely hold almost any key. A micrometer style depth adjustment and precise shoulder gauging cut the most accurate keys possible.

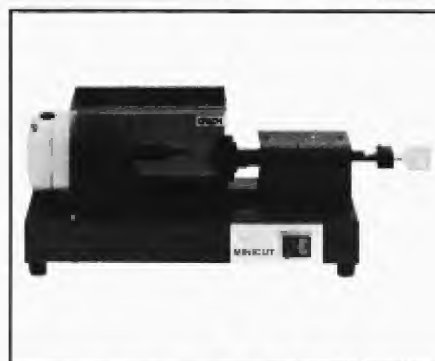
Second Prize



ESP 990 Manual

This machine features double-sided reversible jaws that eliminate the need for adaptors. The carriage is fixed to the sliding carriage shaft resulting in reduced play and less shaft wear.

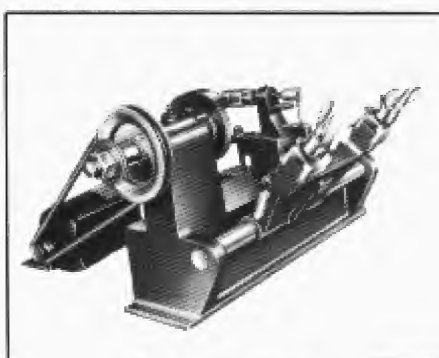
Third Prize



Ilco KD94

Cuts the 1137 tubular key, brass or steel accurately and quickly. Features include large chuck to hold standard size key heads, easily adjustable.

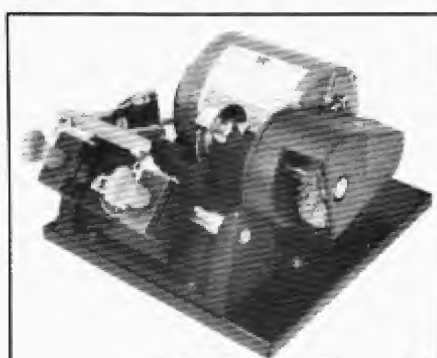
Fourth Prize



Belsaw 200

Duplicate, cut by code, cut flat steel keys. Complete machine with motor, three cutters, guides, and instructions. Built-in micrometer.

Fifth Prize



HPC 9160

Ideal for large key duplication. Equipped with fine double-sided jaws ensuring accurate cutting with little or no wasted blanks.

Sixth Prize

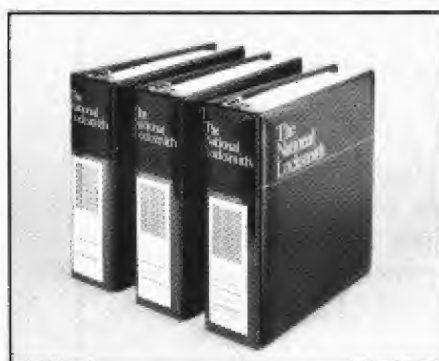


\$150 Cash

Everyone can use a few extra dollars! This prize will brighten your day...and fatten your wallet.

Code Books From The National Locksmith

Seventh Prize



General Code Book Set (NGCB)

These three books contain 450,000 codes covering domestic lock and automobile codes.

Eighth Prize



Padlock Code Book Set (NPCB)

These three volumes offer 462,000 codes covering Dudley, American (Junkunc), Master and Yale.

Ninth Prize



Foreign Car Code Book Set (NFCB)

This two volume set holds 432,000 codes for the complete variety of foreign cars, from Alpha Romeo to Yugo.

Technitips

Helpful Hints from Fellow Locksmiths



Send me your Technitips. Who knows, you may be our next winner! c/o The National Locksmith, 698 Bonded Parkway, Streamwood, IL 60107.

by Robert Sieveking

In the past few months, I have received a couple of letters concerning tips that were presented in the past. One reader was concerned that a tip resembled a portion of a car opening article presented in 1985. Another reader found that a tool modification suggested in a winning tip was very much like another tool that is commercially available. Though I can't endorse a manufacturer's product here, I feel flattered that someone else felt that the modification was good enough to put it into production and offer it to the buying public. Many of the best ideas for new products come from little tips. If I were a manufacturer looking for new products to serve a particular trade, I expect that reading a column like this would be very beneficial.

Though many of us lay claim to

"original thought" in referring to inventions, new products and methods, you would be surprised to find that a great majority of what we consider new is actually an adaptation of an old idea. Though Linus Yale, Sr. may well be considered the father of the pin tumbler lock, in reality the Egyptians were using locks very similar in design over four thousand years earlier. Mr. Yale patented a pin tumbler cylinder that had four rows of pins which contacted the key from four sides. Kaba, a manufacturer of high security locks today, uses a cylinder very similar in design to the earlier Yale cylinder. The rotating disc principle, as it applies to padlocks predates the founding of our country. Though we credit Walter R. Schlage with the invention of the cylindrical lockset shortly after WW I (about 1923), the first patent for a cylindrical lockset was issued in 1833, to the Blake brothers of New Haven, Connecticut, for a similar idea. In 1835 J.G. Hotchkiss patenting the first drive in latch, which resembles today's Weiser driver in latches.

Though I have been granted patents for tools that I manufacture, I find that most are little more than adaptations.

Principles don't change. The names may change, or the applications may be changed to suit a new need, but when you boil new down to what makes it work, you'll probably find an old principle in there somewhere.

Because of the nature of the locksmith trade, it seems that we are all inventors of one kind or another. When you make something you've never seen before, designed by need and made from materials at hand, can you consider it original? What difference does it make? Technitips cannot always be original. Some are only original in their application. Some are only a new twist on an old technique. All are helpful to fellow locksmiths that are constantly looking for an easier way to do a particular job.

If you have a tip that you are particularly proud of, get it in black and white and send it! There's a reward in there somewhere. If the tip is published, you receive a monthly prize. If your tip is judged exceptional, at the end of the year you become one of the big winners. If you only read this column you become a better informed locksmith, learning through the experience of others. How can you lose?

How To Enter

All you need to do to enter is submit a tip, covering any aspect of locksmithing to *The National Locksmith*. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Why not write it down and submit it to: Robert Sieveking, Technitips' Editor, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107.

Tips submitted to other industry publications will **not be eligible!** So get busy and send in your tips today! You may win cash, merchandise, or even one of many key machines or code book sets! At the end of the year, we choose the winners of the listed prizes.

Last year dozens of people walked off with money and prizes. Wouldn't you like to be one of the prize winners for 1989? Enter today! It's a lot easier than you think!

Every Tip Wins 'Locksmith Bucks!'

Yes, every tip published wins a prize. But remember, you must submit your tip to *The National Locksmith* exclusively. Each and every tip published in Technitips wins you \$25.00 in Locksmith Bucks! Use this spendable cash toward the purchase of any books or merchandise from *The National Locksmith*. You also receive a Bonded Locksmith bumper sticker, decal and patch. Plus you are now eligible for the really big prizes!

Best Tip of the month prizes!

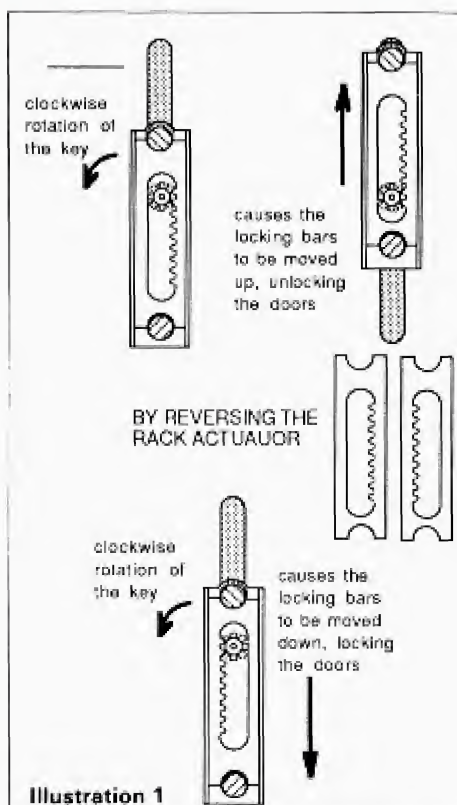
If your tip is chosen as the best tip of the month, you will win \$50.00 in cash as well as \$35.00 in Locksmith Bucks! Plus you will receive a quartz Locksmith watch, a Bonded Locksmith bumper sticker, decal, patch and a Locksmith Cap. Plus, you may win one of the great prizes pictured above.

February's Best Tip

While installing a master key system in a local hotel, I was asked by the manager, if it was possible to modify the emergency exit lock cylinders to all unlock in the same direction. It seems that the new narrow stile aluminum door hardware had been installed by the door company and some of the doors unlocked with clockwise rotation of the key and some unlocked with counterclockwise rotation of the key.

After examining the situation, I found that reversing the locking/unlocking direction for these doors was a simple operation. (See *illustration 1*.) By reversing the rack actuator, the direction of cylinder rotation needed to lock and unlock the doors can easily be changed to whichever direction you find most convenient. The illustration shows that clockwise rotation of the key (counterclockwise, if viewed from the inside) can be locking or unlocking, depending on how the rack actuator is installed in the lock.

I also found that the other rim



mounted emergency exit devices that use a gear and pinion arrangement could be similarly reversed by changing the location of the gear

stop within the lock.

I hope this tip helps out a fellow locksmith having difficulty with these locks.

Raymond Lutz
Ohio

This Technitip may not necessarily be a technical item, but it has worked quite well for me in gaining new customers and keeping those that I have.

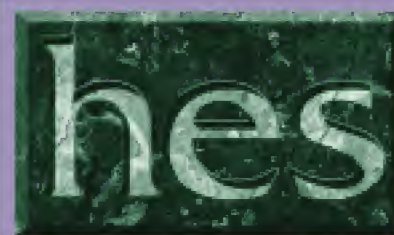
I recently purchased some business card-size pocket phone directories. They are simply a plastic carry pouch and a fold over directory to fit in your wallet. They come printed with your shop name and some advertising that you can make up. The trick is in how to use the give away item to keep regular customers.

After rekeying a customer's locks or opening a car for someone, simply put the pertinent information concerning the job, such as code numbers etc. "in code" into the directory and give it to the customer. When they need service again, they will know who to call. If you're called to make a set of keys for a



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car that you have serviced before, the customer will have the codes, in your personal "code" and the job will be greatly simplified. This little give-away has also brought me many new customers.

Bill Frase
Delaware

I've been reading *The National Locksmith* for three years now, and think it's time I sent in a Technitip. This Technitip involves picking a Ford ignition. I read that some people are having trouble, but I find them easy.

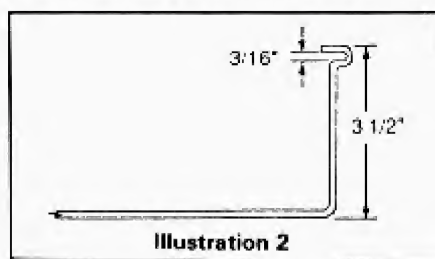
If you have a problem picking the ignition to depress the lock retaining pin, pry the cap off. Now, instead of drilling or slamming the ignition out, "shim it." After the cap is off the cylinder, the lock can be shimmed from front to back with a regular lock shim and a rake pick. Once the lock is shimmed, turn it to the on position and depress the retaining pin to remove the cylinder.

The newer Ford locks with the hardened plate can also be shimmed. But only the last four pins are accessible to

the front, because of the steel plate. The shim must be inserted into the shear line on an angle. Shim the last four pins, and pick the number one pin to open these locks for removal. It shouldn't take more than 10 or 12 minutes to remove either of these locks. I know all locksmiths will benefit from this tip.

Lewis Rayburn
Pennsylvania

This Technitip involves making a better slide lock tool. Some of the newer cars that have horizontal linkages are very difficult to open using purchased tools. Because the lock rod is about $\frac{1}{2}$ " below the handle linkage, tools designed to come down from above the lock rod do not work well.



Fabricate a tool with a hook that comes up from under the lock rod using $\frac{1}{8}$ " spring steel rod. Illustration two shows the working end of the tool.

David Franchuk
North Dakota

This Technitip is for those having trouble making door keys for the 1985-86 Camaro. The first thing you will notice about this car is that there is no glove box in or under the dash. The locking compartment for this car is in the rear deck area.

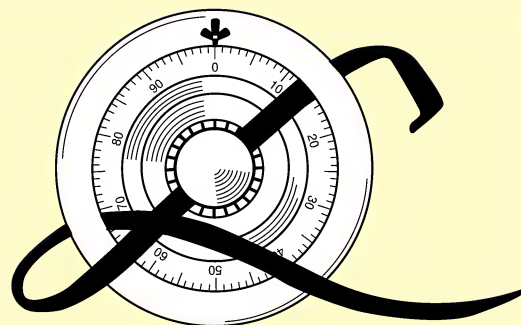
The easiest method that I've found to make the secondary key for this car is to crawl over the rear seat to remove the lock from the rear compartment, and make a key to this lock first. The compartment lid will flex enough to allow the compartment to be opened. After removing the lock retainer clip, the lock can be removed and a key made by looking through the drain hole in the lock case. It is not necessary to remove the lock cap.

These locks use a plastic cap that is hard to replace. After making a working key to the compartment lock, use



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the progression method to complete a working key for the doors and trunk.

This tip eliminates the necessity of removing the door trim and disassembling the door lock to make a working key. It will save time and is much easier. I hope this tip helps some of the newer locksmiths that have not yet discovered this rear compartment.

Bob LeBeau
California

This Technitip is for those that are having difficulty opening the '84 Porsche. Remove the two screws from the right licence plate light. Remove the lamp assembly to gain access to the lock linkage. Using the simple hook tool shown in illustration three, insert the tool approximately 6" into the body, in the direction of the lock. Hook the tailpiece or latch linkage and pull carefully to open the rear hatch.

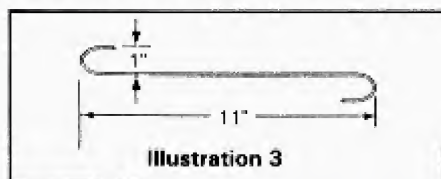


Illustration 3

Craig Meadows
Georgia

Editor's Note: This method will not work on all models.

This Technitip is for opening Ford vans with the square-shaped push buttons. I have used this method for over a year with good results. Using a piece of stiff spring steel wire, bent as shown in illustration four, insert the wire on the

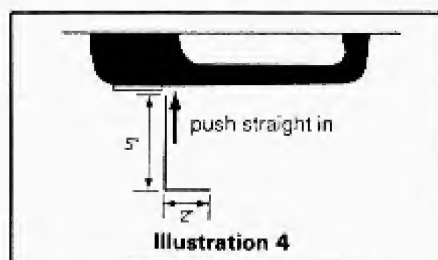


Illustration 4

right side of the button on the rear door. Push the button in slightly to slide the wire into the door. Push the tool until you feel resistance. At this point, push firmly and pull on the handle. The door should come open. This tip only trips the latch to allow the door

to open, it does not unlock the door.

Ralph Howard
Illinois

This Technitip is for an across-the-car lockout tool. An old collapsible fishing pole makes a fine tool for reaching across the passenger compartment to activate an electric door lock mechanism or push a slide lock to the unlocked position when a hook tool or Slim Jim doesn't find the linkage.

Simply remove the guides for the fish line, flatten the tip end for better contact with the button and you're ready to go. By wedging the tip of the door and inserting the tool across the passenger compartment, it is a simple matter to push the electric unlocking button or slide a lock button to the unlocked position. Once the car is opened, the tool telescopes back to a manageable length for storage. If the telescoping sections are loose or slip when pressure is applied, wrap the joints with electrical tape.

Fred Spencer
Pennsylvania

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Newsmakers

New Products and Industry News

Corby Access 3 Offers Card Access Control

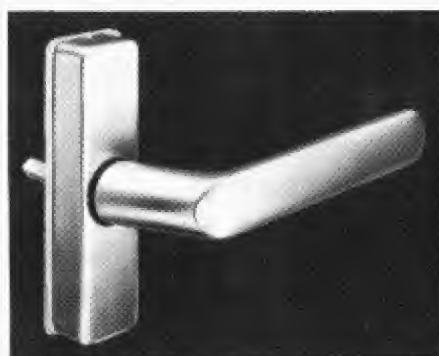
The Corby System 3 is a low cost card access control for single door applications which boasts features normally found only on more expensive equipment. It has the versatility to be programmed to accept up to four different card codes, thus allowing it to be used in multiple door applications with varying levels of access.

The Corby System 3 is easy to install, wire and program. Any door strike, burglar alarm control panel or other electrical/electronic device can be controlled. The built-in heavy duty relay is fully programmable to be latching or timed momentary for up to 20 seconds.



Adams Rite's Concealing Lever Handle

The 4568 lever handle is made to operate Adam Rite series 4700 dead-latches in glass or metal doors. This handle offers a clean continental appearance in a practical shape to keep knuckles safely away from narrow stile door jambs. A steel mounting escutcheon is covered by an aluminum housing.

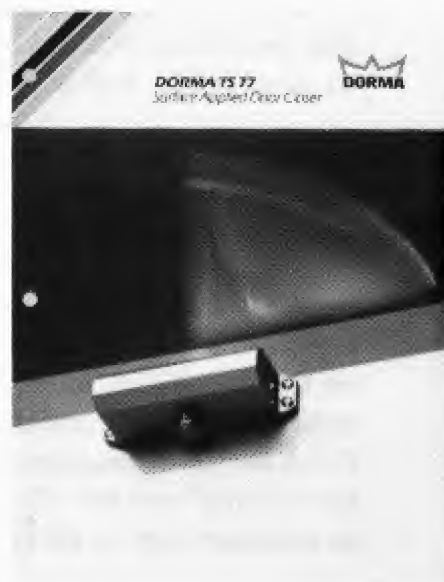


The escutcheon has built-in rotation stops and two helical compression springs. The two springs mean the handle is unhandled; the second spring becomes a "spare" in any given application. Both escutcheon cover and lever are anodized aluminum, in a choice of clear (628), dark "bronze" (313) or black (335).

Dorma Introduces Closer Bulletin

Dorma Door Controls Inc. has introduced a four-color bulletin describing the Dorma TS 77 Series Closer.

Benefits of the new TS 77 surface applied door closer include its compact design, long-term dependability and economical cost. The TS 77 is well suited for economy grade applications and locations where larger closers would obstruct the aesthetic design of an opening or where space is limited, (i.e., hotels, condominiums, apartments, etc.).



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Arrow's New Sierra Cylindrical Lock

Arrow, is expanding its product offering to include the new Sierra design key-in-lever heavy duty cylindrical lock. This new lever complements Arrow's existing knob designs.

The new key-in-lever design is appropriate for both new and retrofit applications, the latter to update existing buildings to meet today's accessibility, fire and security codes. It meets ANSI Grade 1 specifications and is UL listed for A label fire doors, as are the other Arrow cylindrical locks.

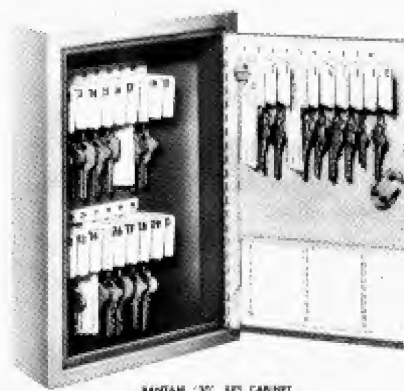
The Sierra design is available in 14 keyed, non-keyed and double cylinder functions to meet the majority of requirements. All Arrow keyways, as well as competitive C & E keyways, are available for cylinder functions. To meet strict security requirements for



key control, Arrow is also offering the Sierra with interchangeable core in all of the Arrow IC and competitive Best and Falcon keyways.

Hardware Suppliers of Am. Add MMF to Stock

Hardware Suppliers of America, Inc. announces the addition of Major Metalfab (MMF) key cabinets and key control products to their stock. New items include wall cabinets, file drawer units, wall racks, emergency key boxes, key tags and envelopes.

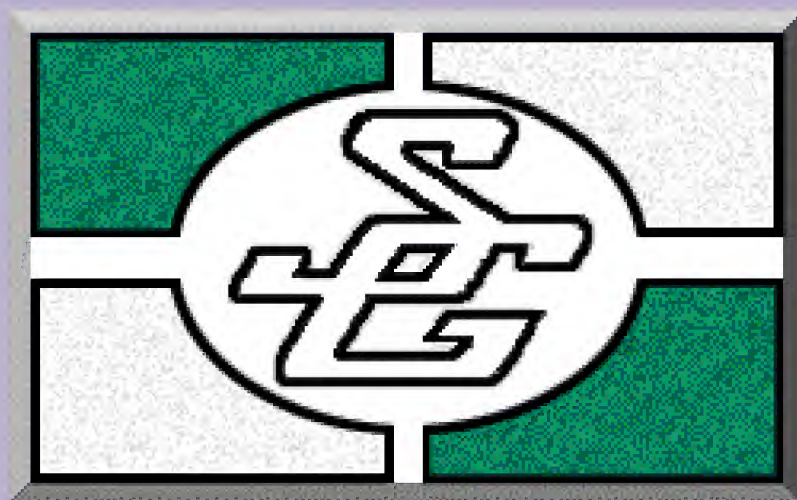


Ilco's Exacta Kits For New Imports

Five new kits from Ilco Unican permit the locksmith to code cut keys for the new imported vehicles, including the seven pin key for the 1989 Chrysler models. All kits are designed for the MKI Exacta machine.

The new kits are: MKI-AMC-AE-88 to cut the primary and secondary key for the AMC Eagle Premier, from 1988; MKI-CH-AE-88 to cut the 7 pin double-sided key used on the 1989 (Chrysler) Dodge Spirit and Plymouth Acclaim; MKI-COLT-AE to cut keys for cars made by Mitsubishi for Chrysler, Dodge Colt, Chrysler Cricket, Plymouth Arrow (H Series), from 1981 to 1988, the including parts for 1989 Dodge Colt, Plymouth Colt and Eagle Summit (E series codes); MKI-FO-FM-AE to cut keys for Capri and Fiesta (TC series), as well as Escort and Merkur (TX series); and MKI-TO-AE-88 to cut the 8 pin double-sided key on the Corolla (G series).

In addition, Ilco has more than 20 other kits for code cutting car keys, such as Allante, LeMans, Cargo Ram, Honda, Hyundai and others.



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Lateral File Line By Schwab Safe

Schwab is pleased to announce the introduction of its new 36" wide lateral files. Available in two, three, and four drawer models, these files offer attractive seamless construction and recessed handles.

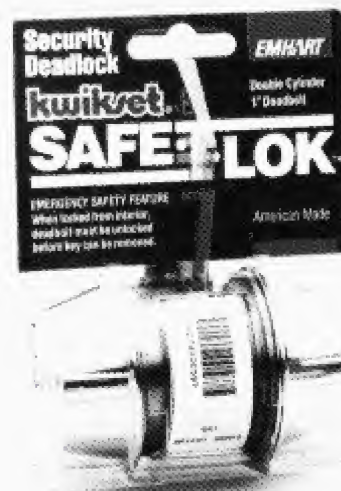
Carrying Underwriter's Laboratories certified fire protection for vital papers, these files are perfect for use at workstations and other landscaped office environments, including executive offices.



Kwikset's Safe-T-Lok Available In Visual Pack

Safe-T-Lok™, a deadbolt lock that virtually eliminates the fear of being locked inside in case of fire or other emergency, is being added to Kwikset's line of visually packaged deadbolt security locks.

Safe-T-Lok is a double-cylinder deadlock with key locking on both sides. However, to provide instant exit in case of fire, the "captive key" on the inside cannot be removed unless the 1" deadbolt is fully retracted.



Kwikset is adding the visually packaged Safe-T-Loks to its System Six merchandisers and is also producing a special display mount. Both point-of-sale units have sales copy which explains in detail the Safe-T-Lok benefits and include a key which demonstrates exactly how the "captive key" works.

High Tech's New Auto Lockout Set

High Tech Tools announces the introduction of their Model 1700 Auto Lockout Set. This new generation of Auto Lockout Tools includes five new tools not included in the previous Model 1600 for a total of eighteen tools. The Model 1700 not only includes new tools but several other features which makes it the most effective resource for car lock service on the market today. One of these features is a complete Auto Lock Service Encyclopedia.

The new Auto Lockout Manual is included in this encyclopedia. The manual is known for its easy to follow

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illustrations, but we have also added hundreds of pictures including rare photos of the inside of car doors. We have actually cut holes in the doors to enable you to clearly see the door linkage and tool in action. Some other topics covered in the encyclopedia are V.A.T.S. service, trunk lock service, key code locations, key blank identification, glove box service, ignition lock cylinder service, steering column service and vehicle identification number information.

Not only does the Model 1700 include an encyclopedia but also a pocket-sized mini-manual. All professional locksmiths have had the problem of working in hard to access, impossible to move situations. This mini-manual will allow you to bring the encyclopedia on any job you may have, no matter how tight or how inaccessible.

For those who own the Model 1600, High Tech will offer an upgrade at a nominal price.

Gardall Introduces New Fire Resistant Safe

Gardall Safe Corporation in Syracuse, New York has released a new fire resistant record safe called the Model 171718.

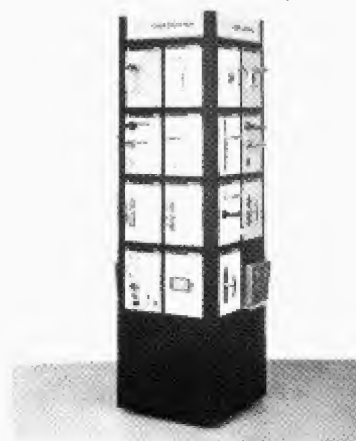
This safe is constructed just like their other record safes that carry the Underwriters Laboratory 350° 1 hour label. It has room for most ledger or accounting records and cash register drawers. The standard interior includes two adjustable shelves. The safe has inside dimensions of 17½"H × 17½"W × 18"D and approximate inside displacement of 5200 cubic inches.



Space Saving Displays From Valli & Colombo

Three new space-saving Valli & Colombo product displays (wall, revolving and floor) are now available to feature Valli & Colombo's line of distinctive door handles and accessories from its Forges and Fusital lines.

The displays combine classic Italian styling with maximum efficiency to assure cost-effective use of retailer space.



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An Overview of Electronics

"Manufacturers make a wide variety of voltages to suit your needs according to the system that is controlling the electric strike."

by Ray Baldwin

The author works for JLM Wholesale, Inc. of Lake Orion, MI. They are very knowledgeable about electronic locking products. This article is based on their experience in the field.

Since the beginning of electronic access control, electric strikes have dominated the function of unlocking doors electrically. They by far outsell any other type of electric lock in the marketplace, but with their popularity there are still many questions about operation, application and function.

The following are questions a wholesaler usually asks his customers and the



reasoning behind them.

The first question and probably the most important is: **What function are you trying to achieve with this lock?** Is it going to be controlled by card access, pushbutton entry system, phone-actuated system, fire alarm unlock, etc., or just a simple manual pushbutton actuated by a secretary to let someone in the front door? Possibly an electric strike may not fill the need with your application and an alternate means of electrically locking the door or doors is necessary, such as an electromagnetic lock, electric deadbolt, electrified exit device or exit alarm.

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Question two: What is the door and frame like? This is a very broad question because of the many different doors in existence. The three most common are aluminum entrance, hollow metal, and wooden doors and frames. Each one poses its own certain installation problem.

Aluminum frames may not be deep enough to accept an electric strike, especially if there is a glass side lite next to the door. Many times this glass protrudes into the aluminum frame thus decreasing the depth needed to install an electric strike. Also, on pairs of doors you may choose to mount an

electric strike in the inactive leaf. You should pay particular attention to the stile width of the door because this is where the strike will mount and may be too shallow.

Hollow metal doors and frames have some interesting installation problems too. Many of the frames are filled with cement or plaster making installation a real chore. The best way I've seen to "cut in" a strike into this application is with an industrial die grinder with a "cut off" wheel. This tool will cut through the metal and also cut the masonry behind it. Then all you need is a chisel or cement drill to clear out the

channel.

Also with hollow metal doors you should be concerned about using fire-rated components to meet UL and FM requirements. Note: If you make any modifications to "fire-rated" doors and frames this usually voids the UL or FM labels. And any modifications on products being applied may have to be approved by the "authority having jurisdiction" (Fire Marshall).

Wood doors pose other problems as well as the fire-rating problems when choosing an electric strike. Most will have to be designated for wood frame use as well as be installed properly and securely. Quite a few installations look very good but when removing a lot of wood from the frame it gets very weak. It's very easy to kick in a door prepared like this and you should consider some type of anchor method to secure the electric strike into the wall or studs behind the wooden frame.

Question three: What type of lock or hardware is on the door? Each type of lock has different advantages or disadvantages when trying to apply an electric strike. There are cylindrical, mortise, unit and rim-type locks. Rim, mortise, surface vertical concealed vertical rod exit devices, latch locks, maximum security deadbolts, tubular deadbolts, rim deadbolts, automatic and manual flush bolts, astrigals, coordinators, etc. and at any one job you may be asked to supply an electric strike to operate with these types of locks. On all types of locks, pay particular attention to the latch bolt projection. This may range from $\frac{3}{8}$ " to $\frac{7}{8}$ " and will usually help determine what type of strike to use.

Cylindrical or bored-type locks are usually the easiest type of lock to electrify. Most "ANSI" (Ansi A 115.1) strikes will install with only minor frame cutting to the face of frame and operate very satisfactorily.

Mortise locks are usually more difficult to deal with because many manufacturers offset the latch bolt centerline opposed to the centerline of the strike plate. This almost always disqualifies the use of an "ANSI" strike because when moving the strike up or down to accommodate this offset centerline, you create a pocket or hole that you will have to fill in order to install this type of strike. The best type of strike is one with an extended faceplate that is long enough to cover any gap created by moving the centerline up or down. Needless to say, this requires more cutting and more work.



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Unit locks require special types of electric strikes but are similar to installation of a strike for a mortise lock. Rim latches are usually easier to work with because they are surface mounted but this lock requires a special type of strike as well.

Rim exit devices use a different type of strike to unlock them, which semi-surface mounts on top of a standard or applied stop. These are usually easy to install and give good results. On doors with vertical rod devices the bottom rod is always de-activated and locking occurs only at the top of the door. A very important bit of information needed is what type of latch bolt is at the top of this door, (pin type, carriage, pullman etc.). This is very important as well, as the exit device bolt remains extended at all times.

Latch locks are usually easy to choose an electrical strike for. Many latch lock manufacturers make electric strikes designed to work primarily with these locks. In addition most "ANSI" strikes will work with these locks as well.

Question four: Voltage? This is the most asked question that I use. The answer is usually a long pause followed by the question, "What's standard?" Manufacturers make a variety of voltages to suit your needs according to the system that is controlling the electric strike. Most card reader systems supply a contact (output) that is used to unlock and lock the electric strike. In this case you should provide a transformer or power supply to operate each strike. Make sure your power supply has enough current to operate all locks or supply a transformer or power supply for each lock.

I like to stick to DC when a card reader or similar electronic equipment is used because this type of power is "less noisy" and is less likely to harm electronic components used by these systems. If your electric strike is to be unlocked continuously for long periods of time, use a strike that is listed continuous duty or silent operation in order to prevent premature failure. Some control systems have "on board" power. In this case, you should be sure voltage on electric strike matches the system's output as well as making sure the system can put out as much current as your strike will draw.

Question five: Fail safe or fail secure? About 90% of the strikes we sell are fail-secure or non-fail-safe, meaning when power fails or is turned off these locks stay locked preventing the door from being opened. Fail-safe, on the

other hand, is opposite—when power is cut, this lock unlocks allowing the door to be opened. (Note: You are not allowed to use fail-safe electric strikes on fire-labeled doors and frames.) Most applications use fail-secure and still meet life safety codes due to the fact that the hardware used provides immediate egress (i.e., panic bar, office function lockset, etc.).

Question six: Do you need any monitoring option? Many electric strikes have available switches to monitor the locking solenoid and latchbolt. These can be used with a door position switch to indicate that the door is

closed and secure. Also these switches can be used to trigger an alarm, operate an automatic door or just light a red or green light to show "door locked."

Question seven: Do you need any other options? Most electric strikes can be made to accommodate odd frame conditions and other problems, like an extended lip for use on a center-pivoted door, milled ramps for a deadlocking rim exit device, a thin faceplate for use when a rim exit device is very close to the frame, etc. If you have a door where the frame or door itself is something out of the ordinary, you may have to

Continued on page 100



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The SDC 600 Series

"The SDC engineering staff is always available to help you in the correct use of power supplies and wire gauges for any requirement you may have."

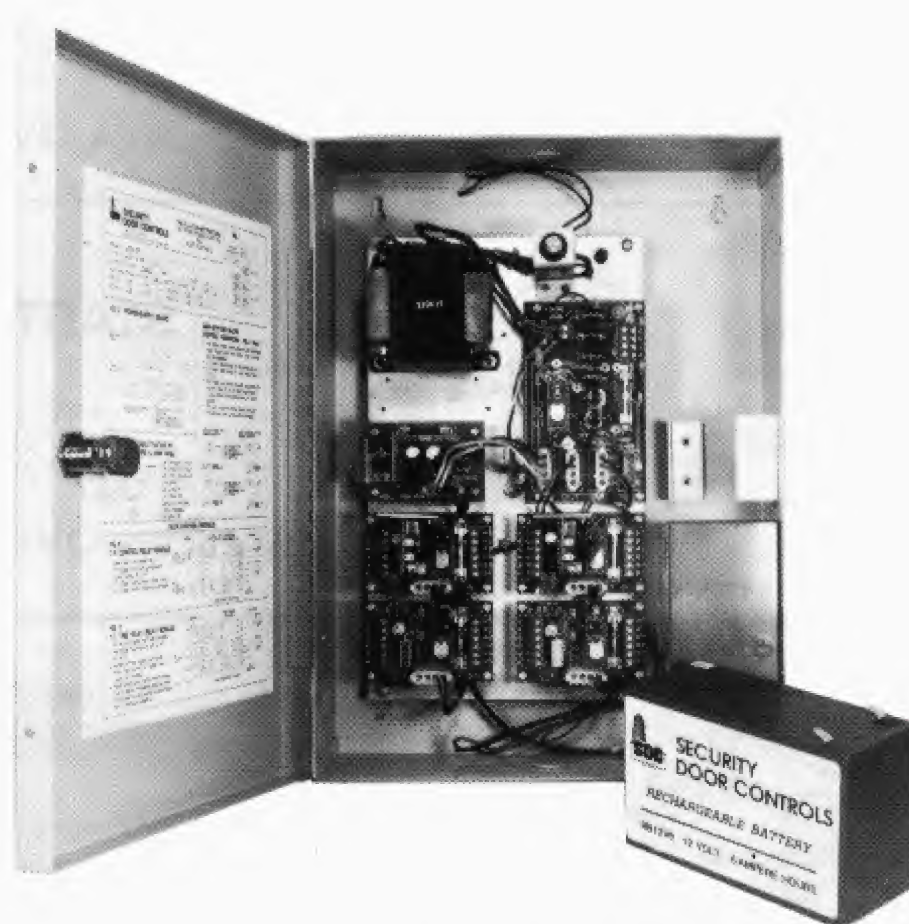
Developed and manufactured by Security Door Controls, the 600 Series Power Supplies provide the specified voltage and current capacity for access controls and electric locking devices. All components, optional relays and battery back-up are housed in one factory-wired box. No field wiring is required, as is the case with individual transformers and rectifiers, thus none of the added labor costs, time consumption and chances of error.

With the addition of Door Control modules, its user-friendly design insures versatility and interface capability of electric locking devices with virtually any access control system. Documentation is provided to insure well organized installation for individual or multi-door systems.

The 600 Series Power Supplies feature the fire/auxiliary relay. The isolated auxiliary relay has four control variations including fire alarm interface. The system on or off status may be controlled by normally on or off wet trigger inputs or normally open or closed dry trigger inputs. The isolated relay also allows for 20 gauge wire runs for up to 1000 feet from trigger devices such as fire alarm contacts, key switches, push switches, control console timeclocks and access control.

Another feature is the LED System Status Indicator. A tri-color LED mounted on the power supply board indicates the system operation mode and offers troubleshooting assistance. Yellow indicates that the system is OK. Green means that there's no DC output and you should check the secondary fuse. Red indicates that the system is on battery back-up or the AC fuse is blown. No illumination means check the primary fuse and AC input.

Security Door Controls' 621 through 626 power supplies are housed in an ivory hinged cover enclosure with conduit knock-outs. They are made of 18 gauge steel, measuring 15"h x 11"w x 4"d. Maximum system protection is



provided by easily accessible fused inputs and outputs. A printed circuit assembly provides quality assurance throughout the solid state design. The modular design allows such features as battery back-up and door control modules to be ordered per system application, or field installed for system expansion.

Door Control Relay Modules insure compatibility of virtually any locking device and access control system on the market today. Functions such as on-off latching, delay on relock, man trap systems and more are made easy. The isolated relay design allows small gauge cable (20 AWG for runs up to 1000 ft.) to be used from the control location to the power supply. Heavier gauge wire is only needed from the

locking device to the door control module.

One module may be added per opening or zone. Up to four modules may be added per power supply. Each module may be different from the next. All locks wired to the same module will operate identically, and each module may be operated by multiple controls.

If you want more information or have any uncertainty on the use of SDC power supplies, call Security Door Controls for assistance. The SDC engineering staff is always available to help you in the correct use of power supplies and wire gauges for any requirement or problem you may encounter. For more information contact Security Door Controls at (818) 889-1622. ■

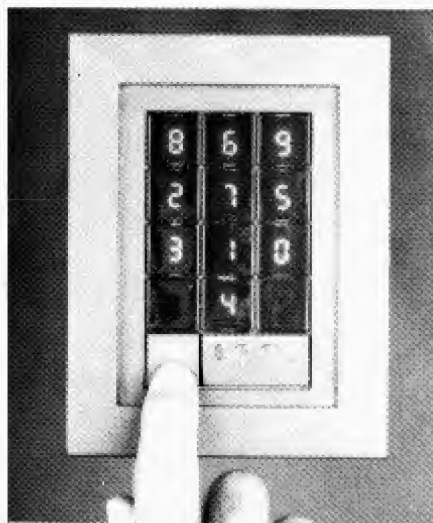
Hirsch's ScrambleLock

"The lock is pick proof, never wears out, never needs graphite and isn't handed. It is regarded as the most secure lock of its type ever produced."

Locksmiths are special people. They are highly trained experts, capable of installing, maintaining and servicing mechanical access control locking systems. These systems consist of all types of locking hardware installed in all types of door and frame conditions. This is not a job for the unskilled.

In many cases the locksmith is involved in designing, changing and maintaining the keying system. The way in which locks are keyed determines the level of access authority throughout a building. This is access control.

How do you key a lock? You *pin* it. A pin is a number; a pin of a certain length is measured by a number equal



to its length. A locksmith has to understand the relationship between the length of every pin in a chamber and the corresponding cuts in the key. Once you set up a cylinder with all the correct pins, the lock will unlock. Simple enough once someone has shown you how to do it.

Now let's talk about a new kind of lock that unlocks a door and uses pins to determine who can unlock the door. You add and delete pins from the lock to change the keying levels or access authority, of certain groups of employees. You can master key the lock faster and easier than any other lock of its type.



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The lock is pick-proof, never wears out, never needs graphite and isn't handed. The lock is regarded as the most secure lock of its type ever produced, by those in the government security community. There is even a version of the lock that allows 1000 or more unique keys on one door!

And one more thing. The only tool needed to pin this lock is your index finger. In fact, the building owner will probably want to do the pinning himself.

This lock we have been describing is the ScrambleLock from Hirsch Electronics. The new SL24+ from Hirsch has the lock power built right in so connecting the lock is a simple procedure. They even have a package called the ScramblePack. It is a complete one door system: controller, keypad, electric strike or mag, or even an electrified knob or mortise lockset, plus the wire you need for installation.

You know, when you think about it, locksmiths are already in the access control business. They sell, install and service locks, so why not the ScrambleLock also? It's actually no harder than re-pinning a 6 or 7 pin cylinder. If you don't learn how now, someone else will install electronic locking control sys-

tems for your regular customers.

Now back to pins. There are two types of pins: mechanical and electronic. You know all about the mechanical pin that is used in a mechanical lock. You also know all about electronic PINs, Personal Identification Numbers, like those used at cash stations. Well that's the way a Hirsch system works. It uses PIN numbers to allow you to key up access for certain groups of employees on a door-by-door basis.

The ScrambleLock has chambers for eight pins. What do we mean by an electronic locking device having chambers? Think of each chamber in a lock cylinder as a memory location. When you are "programming" or keying, a cylinder, you put a PIN in each location. A different length PIN can be put in each location. These PINs are what make the lock work when the correct key is entered in the lock cylinder. A ScrambleLock allows you to add up to eight separate PIN codes to control the lock. When a proper PIN code is entered on the ScramblePad, the door unlocks.

Each PIN can be assigned to a single user or to a group of users. Most other systems like this allow for only one PIN

number. Having eight lets you separately control eight groups of users. Let's say you give PIN 1 to the managers and PIN 2 to the office staff. Set up PIN 3 for production and PIN 4 for the cleaning crew. Now, if a secretary leaves the company, the only rekeying that is necessary is to the office staff PIN. Simply change it to a new code and re-issue it to the remaining staff. All the others stay the same and don't have to learn a new number. This is very convenient and very secure.

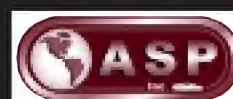
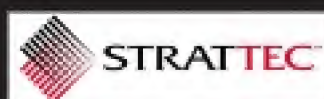
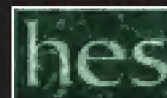
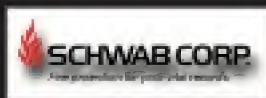
The PIN numbers themselves can be from three to eight digits long. The total possible combinations from eight digit PINs is 100 million. The favorite PIN length has become seven for two reasons. One is security. As you know a seven PIN cylinder is very secure. So is a seven PIN code. Second is that it is the same length as a phone number and is, therefore, easy for people to memorize. All you do is split the PIN into two parts; 951-7429, that's it. Even if a new employee writes it down at first on a scrap of paper and loses it, security is not comprised. If you found a piece of paper with a seven digit code written down that way, it would look like a phone number and not an access code.

Continued on page 100



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Electronic



Locking Products

There is quite a variety available to the locksmith in terms of electronic locking products. Such devices as electronic strikes, access control systems, and electromechanical locks can help you compete with the large security companies. At the same time, your existing commercial accounts can now use your services for their access needs as well.

This product review section displays only an overview of the products currently made available to you. Look carefully through this section and request more information on those items which interest you.

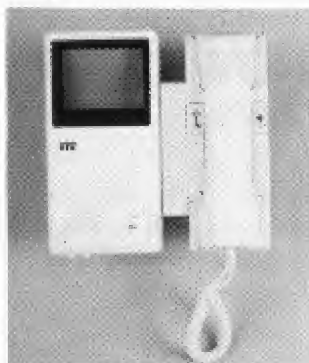
It is also important to remember that many of the manufacturers who make these products conduct training seminars to teach you how to install and service the products. Many of these seminars are free. Contact those companies in which you are interested to find out how you can be trained in the product line. They will be happy to help you.

Also, recall that the various distributors who sell these products can often be a valuable resource for installation and service information. It is clear that electronic locking has found its place in the market. Be sure not to let this profitable area of locksmithing pass you by.

Alpha Introduces Video Intercom

The S.T.R. Video Intercom security system is being introduced to the American market by Alpha communications.

It can be easily retrofitted to existing buildings with a surface mount adaptor, or it can be installed into new buildings. The compact monitor (models VMH24 VMH24A) protrudes less than 2" from the wall, and it features a 4" flat-screen style black and white monitor (measured diagonally).



Circle 302 on Rapid Reply

R.R. Brink Security Latch

The model 3020 eletro-mechanical security latch is a mortised deadlocking latch for door frame installation.

The narrow depth and width of the model 3020 allow for mortise mounting with the 2" trim section of a standard metal door frame or 1 3/4" aluminum tube. Special frame construction and/or wall preparation required for larger electromechanical locks is unnecessary with resultant cost savings.



Circle 303 on Rapid Reply

Continental Instr. CardAccess® 25

An entirely new low cost on-line access control system has been introduced by Continental Instruments Corporation of Westbury, New York. This all new system, CardAccess® 25, features a magnetic stripe reader and low cost high energy magnetic stripe encoded cards.

CardAccess 25 is capable of controlling 975 uniquely encoded cards. The magnetic stripe cards may be easily validated or voided using the unit's keypad which is an integral part of the system.

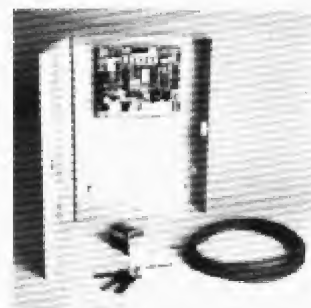


Circle 301 on Rapid Reply

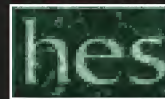
Del Norte's Door Processor

Del Norte Security Systems introduces the Door Processing Unit 1200 (DPU 1200). Available for immediate delivery, the DPU 1200 can control two doors or gates for up to 2000 key or card users with access times scheduled to meet the individual user's requirements.

The DPU 1200 will not become obsolete as user needs expand. The system can be easily and is compatible with the larger TRACS® 7000 system.



Circle 304 on Rapid Reply



New Detex Access Control

A user friendly access control from Detex Corporation, the new Dentco® II system uses on-board intelligence to achieve flexibility in terms of access levels, addition/deletion of authorized users, audit capabilities, self-diagnostics and system expansion.

The Dentco II is a stand-alone, easy to program electronic system offering five access modes: card only, card and personal identification number (PIN), card and common access code, access code only (keypad only), and system over-ride.



Entry Systems Inc. Introduces Univers™

Entry Systems, Inc., distributor of the VingCard locking system, has announced the introduction of the new Univers™ card access control system. The system has been designed to control perimeter and interior doors utilizing only one card.

Extensive research has developed a system that would control access at the perimeter level and at the same time enable multi-door facilities to control access for individual doors.



Hirsch Electronics' Scramblelock SL24+

The SL24+ is designed to directly unlock electric locks and drive 24V dc locks with up to 16amp inrush loads on either or both of its two power relay outputs.

The ScrambleLock SL24+ utilizes high security features of the Digital Scrambler® electronic keypad.

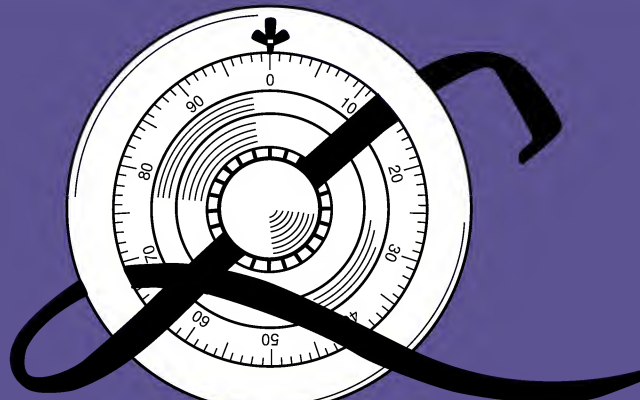
These features include: 1-2 access points; 1-8 user codes; 1-8 digit code length; 1 or 2 door modes; fail secure or fail safe operation; 2 power output relays and 2 control relays.



Locknetics Shear Locks

The low-profile Shear Lock is totally concealed—no hardware intrudes on the door or frame. The unit is true fail-safe operation with a holding force in excess of 1600 lbs. There are no moving parts to wear or breakdown and it has BSA and UL ratings.

Compatible with all electronic access and fire alarm systems, Shear Lock is easy to install and is available with a variety of mounting hardware to fit most applications. Options, such as adjustable time delay and four operating voltages are also available.

Lockmasters has a 44 year history of training security professionals.

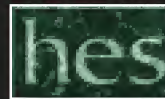
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MRL Inc.'s Crypto Code

The Crypto Code CC2500 stand-alone digital access control features 31 active user codes (each with a variable length of 1-8 digits), over 100 million possible code combinations, 100% weatherproof keypad, operational battery back-up, variable open and penalty times, penalty lockout, and much more.

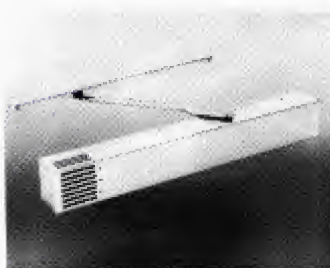
The CC2500 comes complete with control box, battery charger and battery, AC adapter, power supply, and weatherproof keypad.



Rixson's Heritage Smok-Chek

Heritage Smok-Chek, a new generation of smoke-actuated door control devices has been introduced by Rixson-Firemark.

The Heritage Smok-Chek, which combines a smoke detector with doors controls, holds the door open under normal conditions but automatically closes it in the event of fire. Designed for individual room or cross-corridor applications, Heritage Smok-Chek is compatible with any fire protection system and available in all voltages.



Rofu Offers Keymax 2001

Rofu International Corporation offers a keyless digital access control system, the Keymax 2001 series.

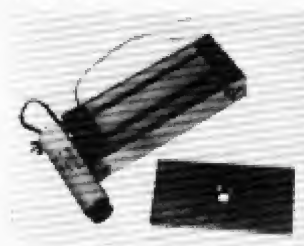
This system consists of three components: a controller, a touch pad and an interface/terminal box. The controller is easily programmable with one to eight digit long master and user codes and can store 72 or 160 (standard) or 320 (optional) codes and records. The unit has a built-in battery back-up system.



Sassonics Offers IRESP-5000

The I.R. activated electromagnetic lock exit control system combines the characteristics of the electromagnetic lock Model ESP-1500 with a newly designed Infra Red Motion Detector Narrow Beam, Model MDNB-2.

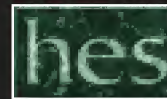
The ESP-1500 provides the door locking mechanism with an electromagnetic field to hold the door shut with a force of more than 1500 pounds. The attached IR detector is used to activate the ESP-1500 by sensing the approach of a person to a door and automatically allows for door release.



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Securitron's DK-30 Entry System

The Securitron Model DK-30 Digital Entry System is a digital keypad-based system for single door use that integrates multiple user capability with a built-in printer for security, accountability and affordability.

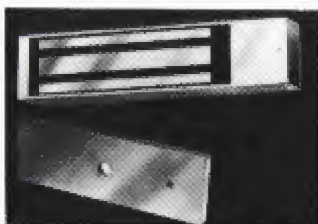
The versatile DK-30 features up to 63 individual user access codes. Five digit access codes are easy to remember and use, but provide sure security against tampering or random attempts to enter. The built-in plain-paper printer provides a record of use.



SDC's EMLock Delayed Egress

The 1511-101 model of SDC's electromagnetic EMLock offers a 15 second delayed egress control, while maintaining a fail-safe emergency exit. Local and/or remote audible alarms notify building personnel of unauthorized egress. If a true emergency exists, however, with the fire system activated, the door unlocks for egress automatically and immediately.

The EMLock 1511-101 complies with NFPA-101 special locking arrangements, and utilizes built-in solid state electronics.



Simplex's Pushbutton Access Control

The Simplex push-button combination lock is completely mechanical, requiring no electricity or wiring, so the lock is unaffected by power failure.

Combinations can be changed in less than a minute by any authorized personnel, without the need of a locksmith, as with ordinary tumbler locks. Large key inventories are eliminated, as well as the need for key retrieval when there is a turnover in help.



Synergistics' Small Card Access

Synergistics Inc. engineers announced their newest product, the MINI-PAC II. This provides a full-feature card access system at about half of the usual cost.

MINI-PAC II supports one or two card readers and up to 3000 cards. With an optional printer the system provides a record of each card access attempt, and offers PIN support, antipassback protection and alarm monitoring. Access levels of one, two or both doors can be set.



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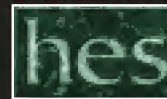


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it's Schwab Safe.***

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Trine's 1001-2 Electric Strike

The 1001-2 strike from Trine Products Corporation has a 9/16" cavity depth and width as well as a keeper length of 1 11/16" which makes this new strike unique.

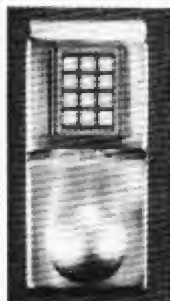
The 1001-2 is fail-secure. This electric strike has a heavy duty armature, latch spring, and solid cast latch. Isolated terminals provide safe connection. The corrosion resistant face plate is available in two colors.



Vanguard SMR Yaletronics

Yaletronics is a touch-code lock for offices and security areas. This moderately-priced keyless entry for office doors and other moderate-security areas is user-changeable with a six-digit code and one million codes available.

It accommodates three different coding groups available and is available in three security locking functions: Deadbolt and latchbolt (1" deadbolt); deadlocking latchbolt, and deadlocking latchbolt with a keyboard deactivation feature.



Continental's Cypher® Lock

Continental Instruments Corporation offers Cypher® LOCK, an electronic combination lock, which is used to unlock all types of electric door strikes and door locks.

The ten key pushbutton panel is mounted near the door outside the protected area. By simply entering an easy to remember four digit combination which the customer selects, the door will unlock for a predetermined period.



Multiple-Door Access By Detex

The new Dentco II MDS (Multiple Door System) Access Control, now available from Detex Corporation, extends programmable single door access control to 32 doors. Its advanced flexibility and simple installation make it a natural fit with office buildings, factories, hospitals, and college dormitories.

Keypad and card access security units (door units) at each door control entrance by card, keypad, Personal Identification Numbers, or a combination of all.



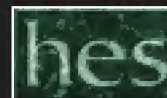

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Securitron's DK-20+Keypad

The Securitron DK-20+ is a digital keypad specifically designed for the control of electric locks in medium to high security environments. It is flexible and can operate any electric lock, is fully weather-proof and programs entirely from the slimline keypad.

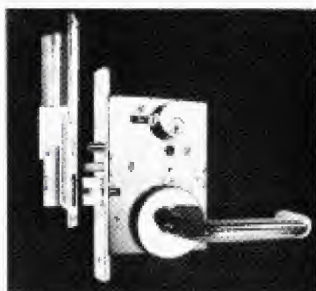
The DK-20+ is packaged as a complete system with a separate CPU controller that mounts inside a protected area, and a keypad that mounts with hidden screws outside, on the door frame.



Security Door Control's HiTower

The unique SDC patented, UL Listed HiTower locks with their combined dual locking/latching capabilities provide a recognized standard for high-rise stairtower doors. They also find many diverse applications for use in commercial, industrial and military fields, as well as other requirements of both low-rise and high-rise complexes.

The HiTower electric controller installs in a 1 3/4" frame, with optional versions for 1 1/4" or 1 1/2" frames.



Rixson Presents Slim Lock

The Rixson-Firemark TigreLok electro-magnetic locking device is the slimmest, most aesthetic device yet designed to legally lock egress doors, according to the manufacturer.

The TigreLok 1700 Series keeps doors locked with 1,200 pounds of holding force. Locks in the series have a low-profile design that allows architecturally pleasing appearance and easier installation.



Rofu Expands Electromagnetic Line

Rofu International Corporation has expanded its line of electromagnetic locks and accessories with a number of new products.

The sliding door magnet, series 8000, with a holding force of 700 pounds maximum, can be mortised into a door jamb or can be surface-mounted by using the optional rim housings for the magnet and armature plate.

Z-brackets are available in standard and tamper-proof models for all series Rofu magnets.

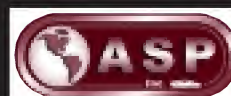
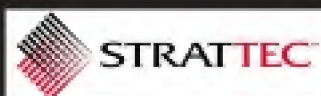
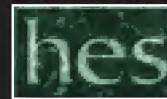


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Servicing Baldwin Locks

"The only thing that will really jump out of place is the deadbolt activating lever and spring, but this is no problem if you take it slow."



Send your lock and key questions to Jack Roberts, The National Locksmith, 698 Bonded Parkway, Streamwood, IL 60107.

by Jack Roberts

Baldwin, a name long recognized as makers of fine musical instruments, is also a name recognized in the builder's hardware industry as makers of fine residential and commercial door hardware. Since 1948, The Baldwin Hardware Corporation has been developing products which offer versatility as well as creativity for individual

designs.

The Baldwin line offers a full range of door hardware from kickplates to electrified mortise locks, and from authentically reproduced early American rim locks to those products required for the physically handicapped as established by the American National Standards Institute.

All Baldwin mortise locksets are U.L. listed and manufactured with three backsets, 1½", 2" and 2½", which will accommodate almost any installation requirement. The 2½" backset mortise lock features a 1" throw deadbolt with two saw-proof inserts as standard. The 1½" and 2" backset

models have ½" throw bolts and do not have the inserts. All functions are available and most of them are reversible. The front bevel is adjustable from flat to standard bevel.

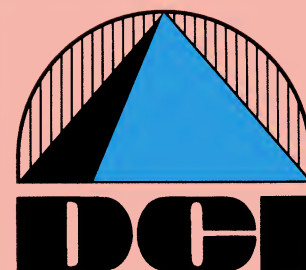
The Baldwin No. 6834 which we will examine in this article is listed as a residential single cylinder entrance lockset with the latch operated by a thumbpiece on the outside and lever handle on the inside. The exterior thumbpiece can be locked by the stop button on the front of the lock, (see photograph 1) allowing retraction by key only. The interior latch handle is always free for immediate egress.

The deadbolt is operated by key only



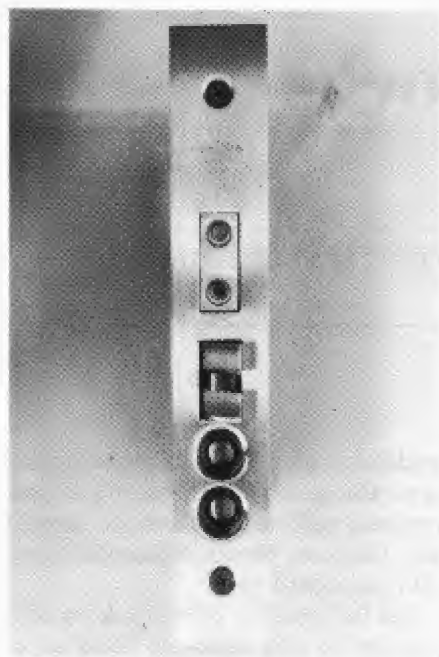
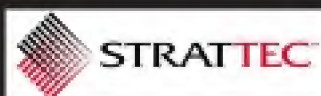
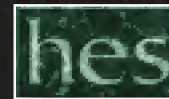
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1. Front of the Baldwin 6834 mortise lock. Note the stop button.

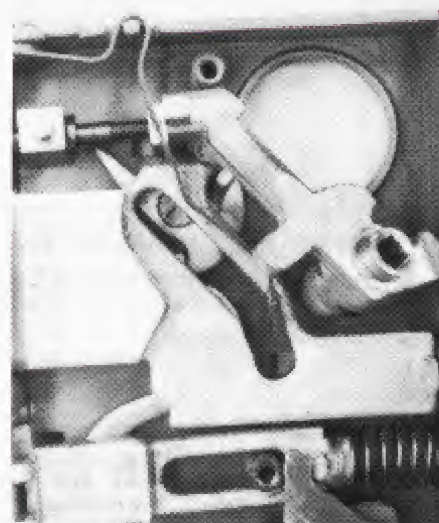
from the outside and by a turnpiece on the inside. When the deadbolt is extended the interior mechanism automatically locks the latch. It should be noted that the 6834 is *not* an emergency egress lockset and that operation of the deadbolt from the inside is by turnpiece only. The Baldwin No. 6821 mortise lockset has the emergency egress feature which retracts the dead-



2. Five screws to remove for disassembly.

bolt and the latch simultaneously when the interior lever is activated.

Disassembly for service, which is rarely necessary, is rather straightforward although there are five screws, (see photograph 2, circled here for clarity), which must be removed before the case cover plate can be lifted off. As with any disassembly the coverplate should be lifted carefully to prevent



3. Deadbolt activating lever and spring.

surprises. Actually, we never *lift* the cover, but rather sort of slide it off while trying to hold everything in place with screwdrivers or other tools placed through the various access holes in the plate.

The only thing that will really jump out of place is the deadbolt activating lever and spring, (see photograph 3), but this is no problem if you take it slow and easy. The latch retractor hub may decide that it has been in one position too long and it may also jump around a bit.



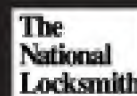
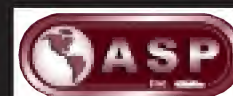
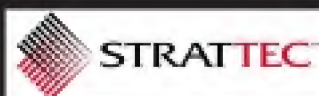
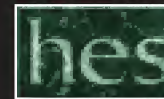
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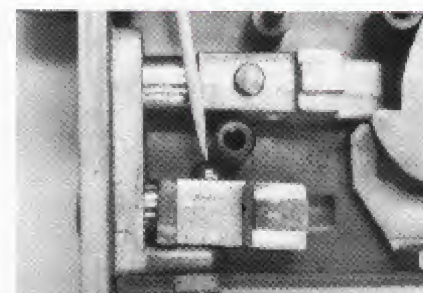


Your main effort at this point is to keep parts from flying. We have had several instances where a Baldwin mortise lock has become inoperative due to bending of the deadbolt by slamming the door with the bolt extended. This, in our experience, has only occurred with the 1½" and the 2" backset models which do not have the hardened steel saw-proof inserts in the bolt.

This type of service problem is remedied by removing the bolt from the lock case (pay attention to where all of the parts come from) and gently rapping it with a soft mallet until it is properly aligned. Hand change is easily accom-

plished, but study the mechanism before removing any components so that reassembly can be without any difficulty.

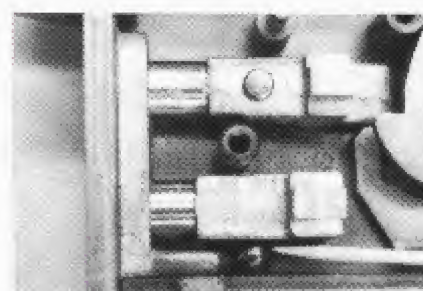
Removal of the stop buttons should not be necessary, but if they are removed be careful of the spring-loaded ball bearing (similar to the BMW bullet) in the lower stop. (See photograph 4.) That rascal can really come flying out! We were recently called to service an inoperative lock on a new installation where the hand of the lock had been changed by the door hardware installer. (Some of you may read that as carpenter.) The stops had



4. Spring-loaded ball bearing.

apparently been removed for some reason and the lower stop replaced upside down.

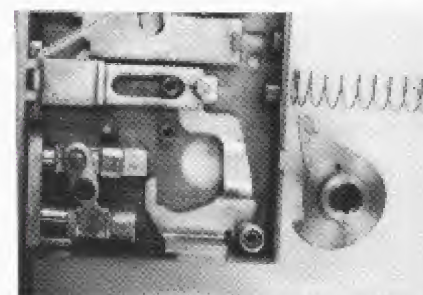
Everything was there, but there was no interconnection between the lower and upper stop. I'll just bet that he had one heck of a time with that ball bearing. Photograph five shows how the lower stop *should not* be installed.



5. Incorrect lower stop installation.

We have found that the best procedure for hand changing is to remove the deadlatch pivot pin, shown in the upper left corner of photograph six, first, before removing the case cover plate. (The cover plate has been removed in the photo for clarity of the pin location.) The pin does not always come out easily so it is better to service it with all parts intact than to take the plate off and then have parts go scattering all over the bench.

Next remove the five plate screws and very carefully slide the plate off the case as described above. A thin instrument can be inserted into the case in the area of the bolt mechanism to (maybe) hold things in place, but they are still going to move. Lift out the spindle hub latch retractor and remove the latch return spring. Photograph six shows



6. Deadlatch pivot pin.



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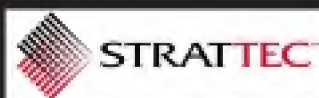
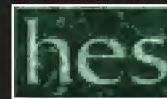


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these parts in their approximate locations.

Lift out the latch, turn it over and replace it in the case. Replace the latch return spring and the latch retractor hub. Note here that the hub assemblies on all Baldwin lever handle locksets have a heavy return spring that cannot be seen from the top. The long leg of this spring must rest on, and bear tension against, the lower side of the bottom center post. We could not get a good photograph of this, but believe me, it's there and it must be installed properly.

Replacing the case cover plate can be difficult, but the bolt retractor and spring can be held in place with a small instrument while carefully sliding the cover into place (see photograph 7),



7. Hold bolt retractor in place while sliding the cover on.

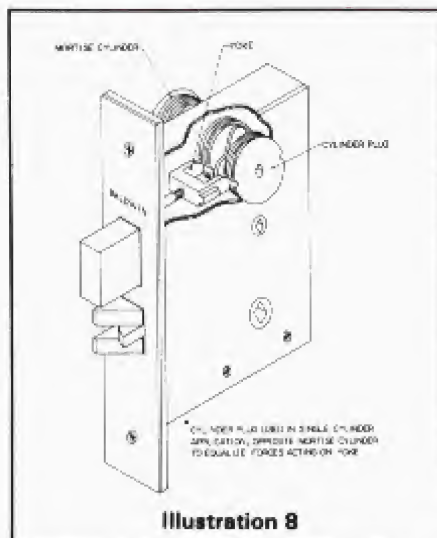


Illustration 8

and then aligning the hubs and guides in their respective openings.

After complete assembly check the latch retraction a few times. If the latch hangs at all, the hub retractor spring is not in the right place. Take the thing apart and start over. If you check the latch retraction with a screwdriver or similar tool placed in the spindle hole of the hub, you will feel the power of the return spring. It is really strong, but with the lever handle assembled, only a very light pressure is needed for retraction. Also, if you should note that the

hub only turns in one direction, don't panic. Remember this is a lever handle lockset, and it operates one way only.

Baldwin single cylinder mortise locksets come packaged with an appropriate strike plate, strike box, cylinder with two keys, and a cylinder plug. This plug, must be installed to equalize the pressure on the yoke when the cylinder set screw is tightened. (See illustration 8.) Trim is not included and must be ordered separately from a wide selection of finishes and designs. Baldwin keyways are designated as 3, 5 and 6 which corresponds to the Schlage, C, E and F keyways. The number 3 on a Baldwin key indicates that it is a Schlage "C", etc.

Baldwin offers complete master keying systems in five or six pin configurations with two, three or higher levels, construction keying, hotel cylinder keying, special wide head 2" blanks for the disabled and special marking options on the bow of the key.

Quality and standards of excellence seem to be the watchwords for Baldwin and we have found that even though we can't play a Baldwin piano, sales and service of Baldwin hardware enables us to play a happy tune on the cash register. Try it, you'll like the sound. ■

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Masterkeying Different Locks Together

"The subject of this article is a system that will allow you to bring Kwikset, National Lock and Weiser locks together under one master key."

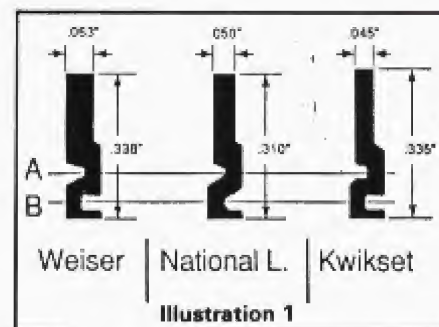
by Robert Sieveking

Bringing together more than one manufacturer under one master key, or within a system has always been a major problem with the locksmith. More than once, a building owner or manager will ask to have his building "master keyed." This, after he has either allowed his tenants to have their own locks installed or after he has been doing his own work for a number of years. The locks chosen as replacements or the deadbolts installed, are usually installed according to what happens to be on sale, rather than what would be best for a particular application. The cost of the job will depend on

how many of the existing locks can be used, and how many must be replaced. The subject of this article is a system that will allow you to bring Kwikset, National Lock and Weiser locks together under one master key.

Ideally, all the locks in a particular building to be master keyed should be of one manufacturer. Sadly we do not live in an ideal world. We must make the best of what we have to work with.

The first step in laying out the system will be to choose a key that will pass all three keyways. As simple as it may seem, the choice of a key blank for this system is a critical decision. (See illustration 1.) The Weiser blank is too



thick in the blade portion of the key to pass the Kwikset or National keyway, and the uncut Kwikset blank is too tall to enter the National keyway. The National Lock key blank is the only blank that will pass all three keyways.

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The common thread that allows us to substitute the NA6 (ILCO R1064D or E) blank in the other keyways is the location and hand of the major keyway wards "A" and "B." This in itself does not guarantee that the key is compatible with the three keyways, but it is a start. Because of differences in the shape of the key warding cuts, the blank chosen may not pass the Kwikset keyway. Differences in the "A" ward cut of the KW1 (ILCO 1176 or S1176, for Kwikset) and the NA6 blanks can make the National blank incompatible with the Kwikset locks in the system.

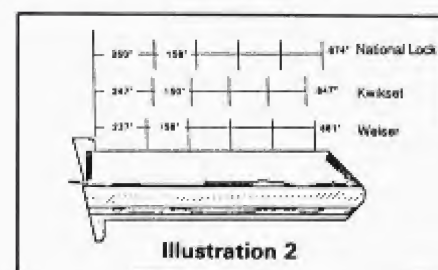
Choice of the key manufacturer is

the key to our dilemma. Through personal experience. I've found that the ESP square bow NA6 blank will pass all three keyways with excellent results. The square "plain bow" keys (manufacturer unknown) and US Lock NA6 keys will also work in this application. The Ilco R1064 plated blanks and others I have tried, will not pass the Kwikset keyway.

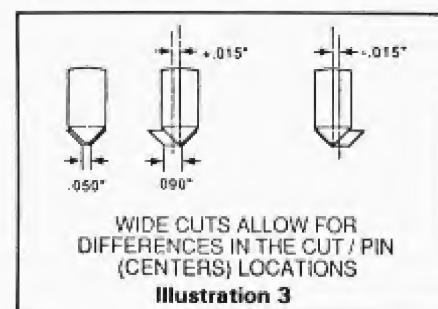
The second decision that must be made as we bring these three manufacturers together under one system, is what depth and space dimensions to use. Because the Weiser "original" bottom pins must be used in the Weiser

locks to make the system work, we will use Weiser depth and spacing dimensions. More about why the Weiser pins are necessary later, but first let's consider the cut spacing.

Illustration two shows the differences in the "shoulder to first cut" and "cut to cut" dimensions of the three manufacturer's locks. You can see that the choice of Weiser spacing has placed the center the tip cut (#5 in this case) approximately centered between the pin locations of the National and Kwikset locks. The center of the #5 National lock pin is .013" farther from the shoulder than the center of the Weiser cut. The center of the #5 Kwikset pin is .014" closer to the shoulder than the Weiser cut.



The cuts must be widened to accommodate this variation in the pin locations. The standard width of a Weiser cut is enough to accomplish the desired effect. If you are using an HPC 1200 machine, widen the cuts as indicated on the code card. If you are using depth and space keys, widen the cuts as usual. The root width of a Weiser cut is .090". A standard code cutter establishes a .050" flat in the root of the cut. The widened cut will allow ample space for a .020" difference in the cut/pin location, with a plus or minus .005" margin (See illustration 3.)



The next important consideration in building this system, is to establish the pin lengths and decide what type of pins to use. Since we are using Weiser depths and spacings, we will use *original* Weiser pins in all Weiser locks.

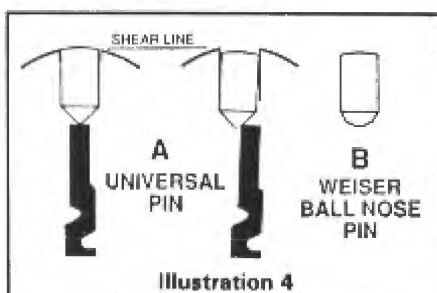
As we discussed earlier, the Weiser key and keyway are wider in the blade area than the key to be used. The wider keyway will allow the NA6 key tip

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when it is rotated, creating the problem shown in illustration four-A. As the key is turned clockwise, the tip of a universal pin will have a tendency to slip off the blade of the key. The pin will then fall slightly below the shear line, allowing the top pin to catch. The lock will not operate smoothly in this direction. If the key is turned counter-clockwise, the key will be forced under the point of the pin again, causing it to rise to the shear line and operate smoothly. If the pin length is increased to compensate for the catching in one direction, the lock will bind when rotated in the opposite direction. The only effective solution for this problem is a pin with a wider contact area on the key, as the ball nose or blunt pin shown at "B" in illustration four.



Because the National Lock locks will use a "non standard" pin length, universal .003" increments pins should be used. Because the National Lock locksets use a small format cylinder, it is also necessary to match the drivers to the bottom pin lengths or cut depths to avoid crushing the tumbler springs or forcing the spring retainer off the cylinder as the key is inserted into the lock. Chart five shows the correct pin lengths for the National small cylinder, when using Weiser depths. (Note that the "0" and "8 & 9" depths are not used in the system. Also note that the recommended driver lengths are given for these locks.)

NATIONAL SMALL CYLINDER TO WEISER DEPTHS (NATIONAL KEY)			
	BOTTOM	MASTER	DRIVER
1	.140	-	.165
2	.159	.036	
3	.177	.054	
4	.195	.072	.140
5	.213	.090	
6	.231	.108	.110
7	.249	.126	

Chart 5

If you fail to match the drivers to the cut depths, you will have problems with the National locks in the system. National locks in recent years have

gone to a cast white metal plug and shell. The older locks had machined brass cylinders. The size and tailpiece configuration of the older locks is, for the most part, interchangeable with the newer style locks. When you scrap out an older lock because of a malfunction in the mechanism, save the cylinders. The brass cylinders will give better service in the master keyed application.

National Lock door hardware, which manufactured the locksets and deadbolts for many years, has been sold to Amerock. You will find that the Amerock locks using the NA6 keyway will fit into this system. (Be careful in bidding, when there are Amerock locks to be keyed. Older Amerock locks used

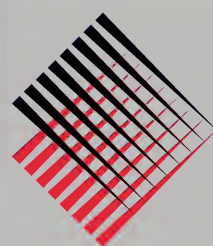
an Arrow keyway. Still older Amerock hardware used a Schlage keyway. The cylinders are not interchangeable.)

The last point in the system is the keying of Kwikset locks to the Weiser depths. Chart six gives the correct pin

KWIKSET CYLINDER TO WEISER DEPTHS (NATIONAL KEY)		
	BOTTOM	MASTER
1	.201	-
2	.216	.036
3	.237	.054
4	.255	.072
5	.270	.090
6	.288	.108
7	.306	.126

Chart 6

Continued on page 100



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by Rick Ohmit

How is your advertising holding out in today's economy? With advertising rates for television reaching six hundred dollars for a thirty second spot in prime time, and yellow page ads ranging from two to twelve hundred dollars per month, are you passing up a chance for virtually free advertising?

Your service truck can help you to advertise your services in every section of town, day in, and day out, with almost no recurring expense, other than frequent trips to the car wash. And one other thing to consider; people and businesses tend to trust their security to professionals, more in

the late eighties than ever before.

One story I like to tell revolves around the service truck and the visual impact it can make on your profits. Our shop was called to a subdivision in a new high dollar section of town one day on a routine deadbolt installation. That same afternoon, one of the customer's neighbors called and asked if we were installing new locks in the customer's home.

Our reply was somewhat vague, but we stated that indeed we had been called to give security assistance. With that, the caller requested that we come to his home the following day and provide an estimate for his security needs.

The next day while the service truck was parked in the second customer's driveway, a third neighbor called the shop and stated, "If that truck is out here installing deadbolt locks, you may as well send them over here. I'm not going to be the only one out here without deadbolts." And on it went, day after day, until our company had serviced most of the homes on the block.

Just a few years ago, to get a service truck lettered, you had to make an appointment with the local sign shop, then leave it in the shop for a minimum of one day. If you wanted nice graphics, or two color work the time without the truck could run to three days



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and a rather large pile of money.

Today, however that has changed dramatically. The same vinyl lettering that revolutionized the sign industry is available to locksmiths from Kinduell Screen Products, Newport KY, (606) 581-5444. I first used vinyl lettering from Kinduell in 1982, after seeing an ad in this magazine. Some of that same lettering is still in use today.

To letter your own service truck, first call Kinduell and have them send you a product guide showing the sizes and styles of graphics and letters. Examine your service vehicle. Keep in mind, if it is a van, one side will probably be different than the other. Select the lettering size and color that suits your application, then select the graphics you like from the brochure.

When the kit arrives, take the lettering out of the carton and lay it on a flat clean surface. The vinyl lettering is sandwiched between a heavy waxed paper on the back, and a thin release paper on the front and will be properly spaced into words or phrases, ready for installation. This arrangement allows you to see the lettering just as it will appear when applied.

Wash the truck with a good quality



1. Vinyl lettering taped in place.



2. Peeling letters from backing paper...



3....and trimming backing off.

soap and water to remove dirt, road grime, and wax. Using masking tape, tape the vinyl lettering with the paper strips into position on the truck. (See photograph 1.) When you get the layout into the position you want, find a blank space between letters or words, and run one piece of tape vertically. When all of the sheets are in place, take a ruler and make sure that all wording is straight. It is important, that at this point, the lettering is straight. Once the lettering is applied, it can not be moved without tearing or stretching the vinyl.

Take one end of the paper strip that contains a word or words, and peel the two papers apart all the way to where the vertical masking tape is. (See photograph 2.) At this point the vinyl lettering will remain on the thin release paper, and the heavier paper backing will need to be cut, and discarded. (See photograph 3.)

Holding the release paper about two inches from the truck's surface, starting at the tape, smooth the release paper, very slowly down onto the trucks surface. Use small up and down strokes, trying not to let the paper wrinkle. With one half of the word stuck down the other half is easy. Just remove the



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center masking tape, pull the strip back over itself until the heavy backing sheet can be peeled off. Then rub this section down just as with the first half.

When all of the release paper is attached to the truck, take the plastic squeegee from the kit, and start, lightly at first, smoothing the letters from the center to the outside edge. Take your time in this step; not only do you want to get good adhesion, but you also want to work out as many air bubbles as possible.

About the time your fingers start to cramp, and you entertain a thought

about removing this article from your magazine permanently, take one corner of the release paper and start pulling it slowly back over itself and down at a 45 degree angle, keeping the paper as near the truck surface as possible. Keep your speed slow and watch the fold carefully. If any vinyl starts to come away with the release paper, stop immediately and again squeegee the offending edge through the paper before continuing.

At the point when all of the release paper has been removed, turn your back on the truck and walk about ten

feet away. Just stand there for a moment and consider that what you see when you turn around is what your customer will see. (See photograph 4.)



4. Finished project.

After a few days with the truck lettering in place the impact to you will not be there, but to the public it will remain about the same as what you see for the first time when you turn around.

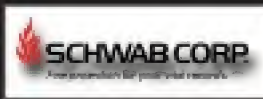
When you finish patting yourself on the back, use a soft cloth, and once more rub the letters firmly to insure that all of the edges are down. If the lettering is large some air will be trapped under the vinyl causing small air bubbles. Resist the temptation to poke, cut, or pop. Even in Illinois winters they will dissipate with the help of the sun in about two weeks or less.

After a few weeks, wax the truck with a liquid or presoftened wax to protect the painted surface. I have applied vinyl lettering and graphics to a dozen trucks without any problems, and our trucks are washed more often than most passenger cars, in regular high pressure car washes.

I have lettered all of my trucks with vinyl products, and the only graphic I found hard to use was the ring of keys. An exceptionally large graphic tends to be very hard to handle and the best way I have found to work with them is spray a non ammonia window cleaner on the surface of the truck where the vinyl is to be placed. Then remove the backing paper from the vinyl, and spray the adhesive side of it, also. Take a soft cloth and wrap it around the squeegee, then place the graphic on the truck, and very gently squeegee the liquid from under the vinyl. Large graphics usually come without a release paper on the top surface and vinyl stretches easily. Keep the pressure light and work from the center out. The window cleaner will, disappear, just like the air bubbles. ■

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Opening A Monster Diebold

"This unit was a monster. I tried the combination and it worked. I could feel the bolts moving back and forth but the door would not open."



by Dale Libby

I was called early on a Friday morning by a seafood restaurant manager that had two other lock companies refer him to me to open their safe. Neither of the other companies had the time to work on this safe, however both had sent servicemen out to diagnose the problem. The safe had to be opened immediately, for there

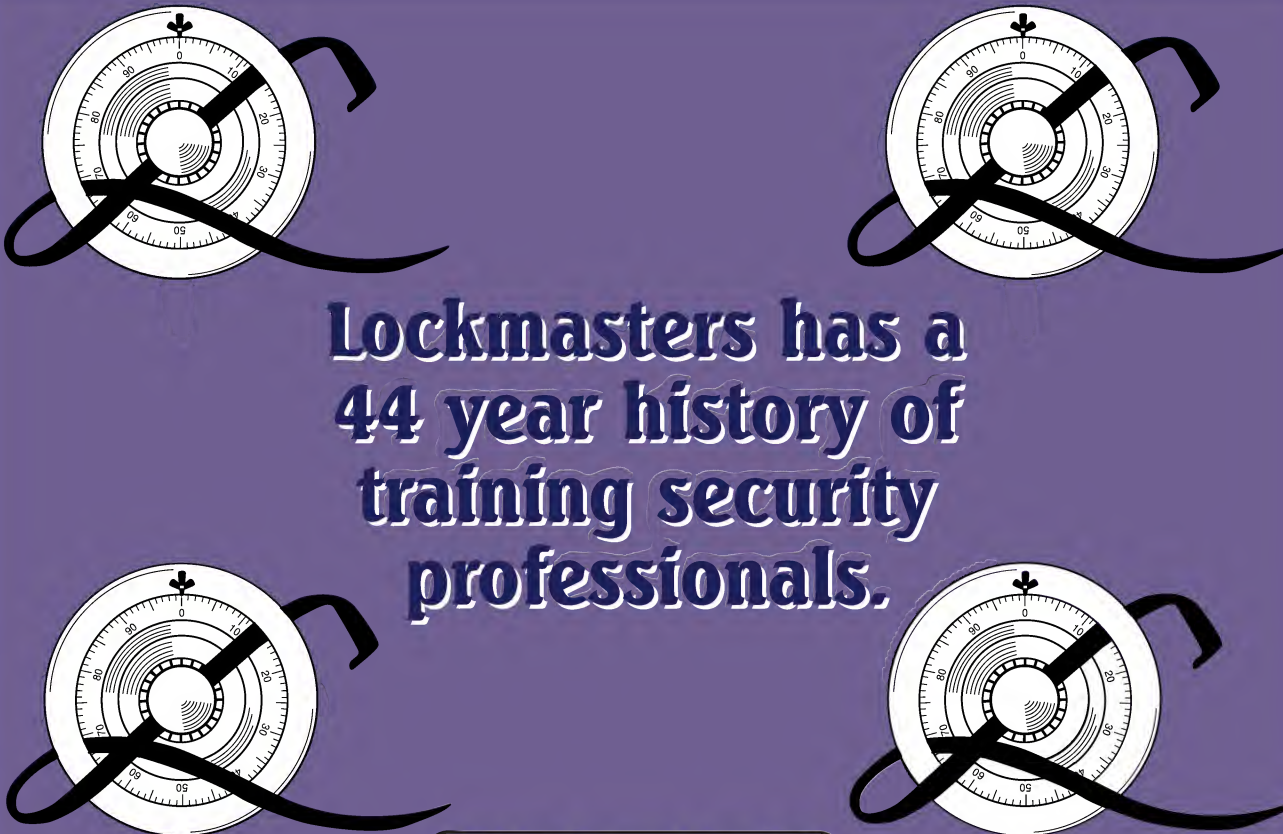
was no money to open the registers.

I obtained the necessary information by cleverly questioning the anxious manager. I found that this was a Diebold cash guard with a large square door opening. Apparently, the bottom bolt was not retracting. The combination was working correctly and the handle was moving, but the door would not open.

With my knowledge of safes and, in this case, a money chest of the highest degree, I knew the opening would be tricky but not especially hard, as long as the combination lock worked. I would just have to drill for the bottom bolt from the side of the unit and push it back in and the door would open. I

asked if the safe was free standing, and they said that all sides of the safe were clear, but the back was cemented into the wall of the basement. I said that I would be out in about one hour and that the charges for opening and repairs would be \$300.

They stated that this would be fine, if I could get out there as soon as possible, and that they would pay cash up front to hasten my arrival. Now, I know how these people look at safe openings. They had been quoted by a rather large Chicago firm a price of \$120 for the first hour, and then \$54 for each additional hour, plus service call, plus parts to open the safe. There was no guarantee of how long the opening would



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take, and that they could not get there until much later that day, if at all. This customer wanted the safe open now, and they were willing to pay for it *now* and not *later*. High prices and quick service is what I specialize in. I went to the job, about 38 miles from my location, just on the outskirts of Chicago.

When I arrived at the locked chest, I thought that the customer would get their money's worth from me. This unit was a monster. I looked this unit up in *The National Locksmith Guide to Safe Opening, Volume I*. It was listed under Diebold, New Style Square Door. It showed a picture of the safe door that was almost identical to my safe. The handle in the picture is vertical, whereas the handle on my locked safe was horizontal. Looking at the unit from the outside, it would seem that the lock would be mounted right-hand, but in truth, the lock is a diabolical unit and is mounted vertical (down). The handle also attaches to a large backplate and is gear-operated to withdraw the locking bolts. Plus, the two vertical bolts above and below the centerline of the combination lock are spring-loaded and act as relockers if the backplate is off.

This particular unit uses a strange

system to withdraw the boltwork. A large movable panel is attached to the back of the door, and this whole panel moves when the outside bolt handle is moved. The locking bolts are attached to this panel by strong "C" clips. I thought that the bottom clip had come undone, and the bottom bolt was not moving, or that it possibly was relocked into position.

I tried the combination and it worked. I threw the opening handle clockwise, and it moved quite a distance. I could hear and feel the inside bolts moving back, but the door would not open. Time to get the drill and all the punching tools, the extension cords, the hammers, the Chrysler torsion bar, and anything else I could get to make the opening impressive.

What I planned to do was to locate the bottom bolt, measure back from the side of the safe in line with the bolt, allow for a stop bar which the bolt was behind, and then drill accordingly and punch or push the bolt back. What really amazed me was that there were marks on the outside edge of the door where the bolts had struck and marred the paint. It was easy to locate the three bolt positions. (I stuck a business card

in beside the door and jamb to measure how far back the stop bar was, and added an inch to this measurement.) I was about to drill my first hole, when I had a funny feeling.

I knew that this cashguard model had a very good detent system that keeps the bolts out of harm's way when the door was open. I could not understand why there would be bolt marks along the edge of the door if it was working. I questioned the manager on the precise procedure that he used when opening the door. I had him go through it slowly. I found out that after doing the combination to the stop point, the manager turned the handle and pulled at the same time out on the door and handle. This opened the door (when it was working) without letting the detent engage. Properly working, the handle would only lock into the safe bolt position when the handle was turned to the stop position at about 11 o'clock.

The way the customer was opening the safe, the detent was never really engaged, for the door opened without having the bolts fully extended. This was why the door was marked and the jamb too, for they were closing the



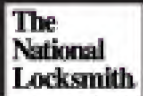
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door when the bolts were out. When the door is working correctly, the bolts will almost throw themselves when the door is closed from the full detent position. This gives the handle a spring-loaded feel when working correctly.

Everything felt right, but the door would not open. Having made several trips to my truck, and carrying three loads of tools to the site, I was still hesitant about starting. For the fun of it, I took my business card and ran it around the edge of the top and sides of the door. There was no resistance. I then took the card and ran it along the bottom of the door, and to my surprise, about halfway along the bottom, it stopped. I ran it the other way, and again it stopped about 1/8" from the other direction. I bent down and took a closer look.

This particular safe was mounted on a cement pedestal about one foot off the floor. Around the pedestal, there was a steel sheeting to cover the inner cement. There was a small amount of clearance between the edge and the bottom of the door. What I could just barely see was a smear of copper color, and that is what stopped my business card from moving. I took out my pen-knife and pried the penny from its hiding place, turned the opening handle and the safe door opened easily.

The penny had fallen into this crack, and when the door was slammed shut, it bent the edge of the penny just enough so that the door could not open. It was like a Chinese finger puzzle. The more pressure on opening the door, the more the penny had jammed into the bottom of the door preventing it from being opened. Time elapsed so far was about 15 minutes to carry down all my tools and set up drills and hammers, etc. and about two minutes to open the safe. I checked everything else out, and everything was working fine. I did some extra work that I did not charge the customer for.

I re-established the detent system. I lubricated and adjusted it so that it would take effect earlier on the opening of the handle. I also stressed that since I put the new system in, it *must* be used everytime the door was opened. I showed everyone who had access to the safe that the handle must be fully raised (clockwise) before the door was pulled open. This would keep the bars in their proper position until the door was shut as it was supposed to be.

They were impressed that I had installed this system for them. (It was always there, but none of them knew

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Continued on page 99

Humor:

Murphy's Locksmith Laws

"As I started toward the door, two guys walked out holding hands. So much for that door! I still couldn't find the correct apartment door."

by Bobby DeWeese

It was one of those weeks where everything was going so well that I found myself waiting for someone to pull the rug out. I am a devout follower of Murphy's Laws. Especially the one, "When too many things are going right, look out!"

Sure enough. Friday afternoon the phone rang. I quickly found a way to look busy so I wouldn't have to answer it. My escape was short lived.

"Hey Bobby," came a voice from upstairs. "You're gonna love this."

Somehow, I doubted that, but up the stairs I went. Wayne, my boss at the time, handed me the receiver with that all too familiar "Gotcha" look on his face. As I took the phone with one hand, I thanked him with the other.

To my surprise, on the other end of the line was the sweetest elderly lady I'd ever talked to. I forgot her name, so for the sake of conversation, we'll call her Mrs. Jeckle.

Mrs. Jeckle politely told me about how even though her son-in-law, who stops by everyday to check on her, just had her locks changed, every time she went to the store someone was still coming in with a key, and stealing little things from her apartment.

It sounded good to me. Two rekeys and I could consider myself done for the week. I cleaned up some loose ends around the shop, said my "goodbyes" and bolted for the door.

When I arrived at the address, I found the apartment building, but I couldn't figure out how to get in. Of the four doors facing the street, one was a convenience store, the employee of which had no idea how to get to the upper floors. Another was a bar. As I started toward the door, two guys walked out holding hands. So much for door number two! The other two doors looked like they hadn't been opened in years.

I remembered seeing a pay phone at the convenience store so I decided to

give the lady a call and ask her. Mrs. Jeckle answered and I explained the situation.

"Don't be so damned stupid," she yelled. "It's around back, behind the bushes!" "Now get up here!"

"Yes ma'am," I said, biting my tongue. As I hung up the phone, it began to dawn on me just what Wayne meant by "Your gonna love this." While plotting my revenge on my boss, I headed for the back of the building.

When I finally got to her door, I noticed Medeco rim cylinders, (Sky level), on both doors and immediately began wondering how anyone had gotten a key to her lock. After asking myself if I was sure that I wanted to, I knocked on the door. No one answered, so I knocked again...louder. She had to be home. I just called her.

"Who is it?" she asked.

How could she have possibly forgotten? I'd just talked to her. "The locksmith," I replied, shaking my head.

"Be right there!"

I waited about a minute and a half. Nothing. I knocked again.

"Who is it?"

By now I was looking up, silently asking what I had done to deserve this. "The locksmith!" I repeated.

"Be right there!"

"Didn't we just go through this?" I thought to myself. About thirty seconds later I heard the sound of so many slide bolts, latches, and other gizmos that I was beginning to believe Maxwell Smart was on the other side of the door. Or would you believe ...Maxwell Smart's grandmother.

When the door finally opened, there stood a four foot-two, blue haired lady. She looked like someone out of a Hallmark commercial.

"What do you want?" she demanded.

"I'm here about the lock."

"The lock? What lock?"

"The one you called me to change because someone has a key to it."

"Oh! That lock! Are you blind? It's

right there!"

She pointed to, (you guessed it), the Medeco cylinders.

"I can't even leave the apartment. Every time I go out, someone comes in and either moves things around or steals something. Last week they came in and stole my best slip!"

Just about this time it was dawning on me that this lady had a problem with more than just her attitude. So I tried my best to be extra nice.

"Would you like me to rekey them for you?" I figured it was pointless to try to explain the theory of restricted keyways.

"No!" I want new cylinders!

"But Ma'am," I said. "I can rekey these so the old keys won't work anymore at about half the cost."

"I don't want them rekeyed. I want new ones!"

"No problem," I said.

"How much are they?"

I thought she was going to swallow her teeth when I told her.

"Got anything cheaper?"

"Certainly," I replied. I went on, and tried to explain how something cheaper wouldn't have the same security as what she already had.

She finally decided on some die cast cylinders at about five bucks apiece and by this time, I had given up trying to talk her out of it.

"Make sure you give me two keys. One for me and one for my son-in-law who comes by every day to check on me.

When I finished, I gave her the two keys. As she was trying them in the lock the phone rang.

"I'll be right back," she said, and slowly walked down the long hallway to the front room to answer the phone.

I thought now would be a good time to take my tools out to the truck and write up the bill. When I got back she was waiting at the door holding one of the keys in her hand.

"What's the matter with you? I told

you I need two keys. One for me and one for my son-in-law who comes by every day to check on me."

"I gave you two keys," I said.

"No you didn't. You kept one and I'm not paying the bill until you give it to me."

"I'm sure I gave it to you. Do you remember putting it somewhere?"

"Maybe." She began looking.

Wanting to get out of there, I decided to help. "Did you leave it by the phone?" I asked.

"I don't know. I'll go see." She slowly headed for the front room. This time I followed her, just to be on the safe side. When we got to the front room, sure enough, there was the key, right next to the phone. "Oh! There it is," making no apology for accusing me of trying to keep one. "Let me make sure this works."

Back up the hall we went. When we got to the door, needless to say, the key worked.

"Okay, this one works fine. But I need two. One for me and one for my son-in-law who comes by every day to check on me."

By now, I was really starting to feel



sorry for her son-in-law (who comes by every day to check on her). I found the other key on a table, got the other one from her, and held onto both of them while I gave her the bill.

"Just a minute," she said. "I'll get my checkbook."

Back down the hall she went. After what seemed like and eternity, she reappeared with a check.

I'm gonna need two keys. One for me and (all together now) one for my son-

in-law who comes by every day to check on me."

"Yes Ma'am," I said. "Here you go." I took the check, gave her the two keys, one for her and you know the rest, and handed her the receipt. "You have a nice day," I said, and got out of there so fast that I think my feet hit three of the steps on the way down.

Whoever said, "The customer is always right," couldn't have been a locksmith. ■



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A Cinci Safe Opening

"I'm not the greatest safeman in South Carolina but I am the greatest in my own hometown—I am the only one. But I figured I better call for help on this one."

by Lee Griggs

Sunday morning was quiet and peaceful. I had taken the dogs for their morning walk and Jeannie, my wife, was cooking what smelled like a delicious breakfast. Usually I don't get any lockout calls before church is over so when the phone rang I was not too concerned.

"Is this the locksmith? I have an emergency. I cannot get my safe open and I have to open the store in three hours."

After determining who the caller was and having a short conversation to get some preliminary facts about his problem I told him I would be on my way as

soon as I ate. I assured him that I would have his safe open in time to begin business. After all, I am a professional locksmith, aren't I? My wife reminded me that it took me half a day the last time I opened a safe. These civilians have no faith.

When I arrived at the drug store, the pharmacist took me to a Cinci Safe stored under the druggist counter. I spun the dial a few times, looking professional all the time, tried the handle, and began asking questions. When did the problem start, had he been having much trouble locking or unlocking the door, did the dial turn easily, what had he done when the safe gave him this

problem?

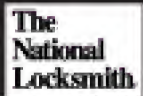
I found out that days ago the bolt had been hard to operate. He had to dial the combination a number of times to open the door and last night when he locked it, he had to kick the door and handle to get it shut. When the dial would not clear, he kicked it and it locked. Very professional. I was glad that I did not need a prescription filled at that time.

I redialed the combination two or three times, checking the pickup of each wheel and I was satisfied that each wheel was doing its thing. I got my rubber hammer from the van, redialed the combination to the opening point



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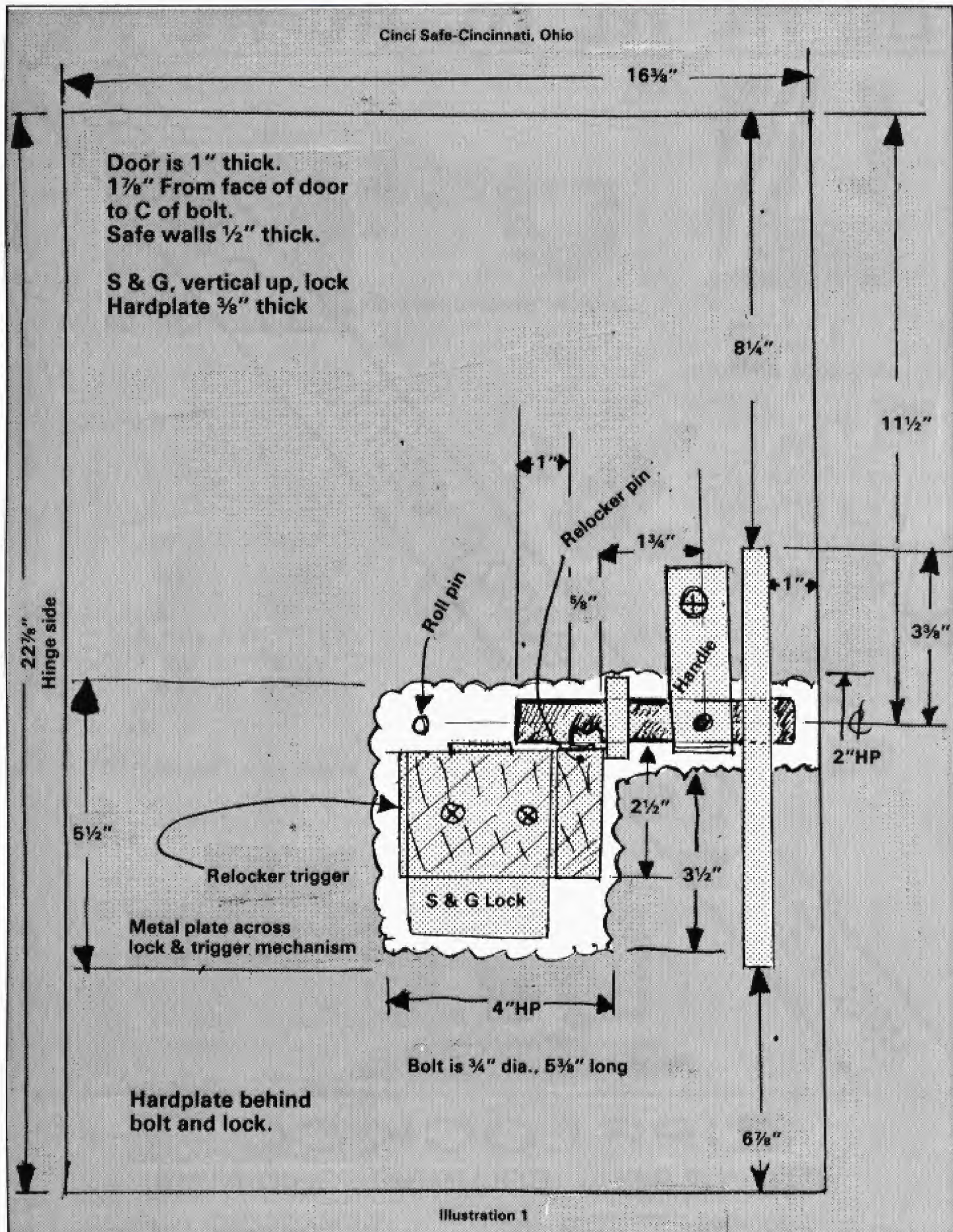
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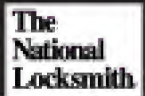


stopping the dial at "0" and rapped the
heck out of the door. You could hear

the fence lever drop into the gates with
a distinct click.

Turning the dial to 95, I turned the
handle to open the door. Nothing! The





handle moved thirty degrees toward opening and stopped solid. I moved the handle back and forth and all I got was a clank, clank at each stop. The handle moved quite freely.

I started to redial the combination and found the dial was trapped between ninety-five and two. I could not clear the dial no matter how hard I tried, even after rapping the heck out of the door. Now what do I do?

I'm not the greatest safeman in South Carolina but I am the greatest in my own hometown—I am the only one. I figured I had better call someone with a whole lot more knowledge than

mine—Cal Stafford. I called Cal at home in Goose Creek and described my problem to him. He got out his books and looked up this particular safe.

The handle was to the left and below the dial. Mine was above the dial. His description showed three bolts. My pharmacist said his had only one bolt.

We decided that this safe had a vertical up lock with one bolt and a bolt relocker. We also decided that the lock was possibly unlocked because the dial was trapped at ninety-five which is the point where the bolt is fully withdrawn. The free movement of the handle was

rather confusing because neither of us knew just how far the handle should move. We both assumed it was moving to its fullest extent and that meant the bolt was possibly disconnected.

There was absolutely no slack motion in the door which indicated that the bolt was probably jammed behind the strike or else a bag or coin was jammed in the door. I pulled the safe from its hole under the counter, turned it sideways in the aisle and dropped it hard on the hinge side of the cabinet. I almost lost my toes. The door popped open and started to fall as I caught it. Believe me, a one inch steel door weighs a bunch.

After the pharmacist had cleared out all the loose money and money trays and shelves, I began to disassemble the cover over the lock and bolt. (*See illustration 1.*) A $\frac{1}{4}$ " \times $\frac{1}{2}$ " long roll pin fell out in my hand. The handle was disconnected. There was visible evidence that the door had been closed a few times with the bolt extended putting a very slight bow in the strike. The set screws in the handle were loose but everything else was correct.

After hammering the strike back in place—it is welded about three inches above and below the bolt area but not in the middle allowing it to bow—I filed the metal smooth and also dressed the face of the bolt. I tightened the set screws and replaced the bolt in the proper position and reinserted the roll pin. I peened the area around the pin to be sure it would not fall out again and reset the combination.

I could only assume that when the druggist tried to force the door shut, the bolt moved partially home still blocking the lock bolt with enough force that the fence lever would not drop. The roll pin came out and you know the rest. My banging with the rubber hammer caused the bolt to loosen slightly and the lever dropped, the lock unlocked, the bolt moved just over the lock bolt and the dial was trapped.

When I dropped the safe on the floor the force pulled the bolt from behind the strike. I do not recommend this method unless you have carefully planned for the door to fall open. I almost forgot to mention my two 4x4 blocks that I had previously placed on the floor in case I missed catching the door.

I collected my money from a very happy druggist and headed for home and my next cup of coffee. The rest of the day was rather boring—only three lockouts by 5 p.m. ■



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Working On Volvo

"The 1988 Volvo series 760 vehicles have a milled key similar to the Mercedes 4-track type key. Here is some helpful information on the lock."

by Lynn Hawkins

The 1988 Volvo 760 series vehicles now have a milled key similar to the Mercedes 4-track type key.

Photograph one shows the set of lock cylinders for the 764 sedan. The 765 wagon has two different cylinders, one for the tailgate and another for the spare tire compartment that replace the trunk lock.

The keys used with these cylinders are shown in photograph two. The master key is Silca number NE66P, the valet key is Silca NE67AP. The third key is a master key without the rubber head and is referred to as the wallet key. The tag has two rows of numbers



1. The 760 sedan lockset.



2. The Silca NE66P masterkey and NE67AP valet key.



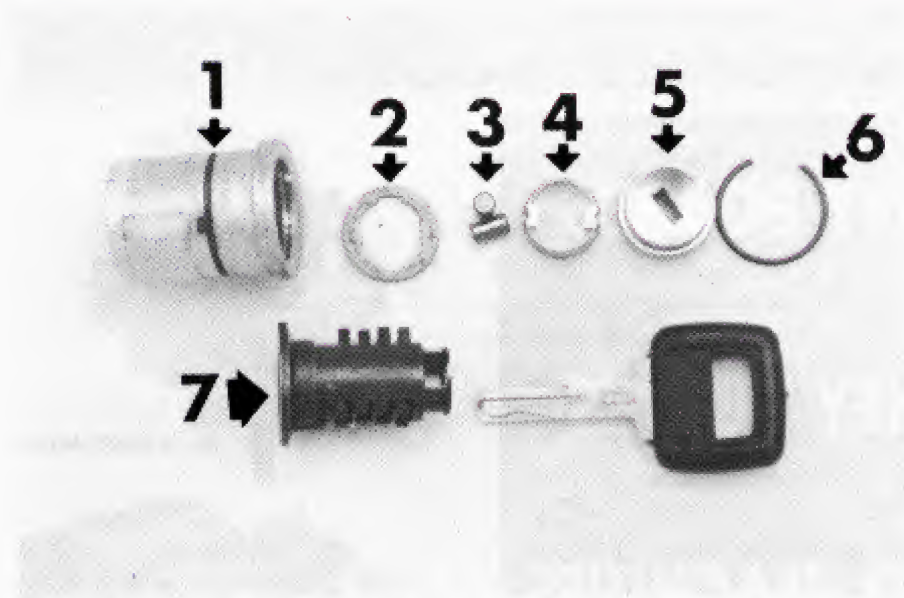
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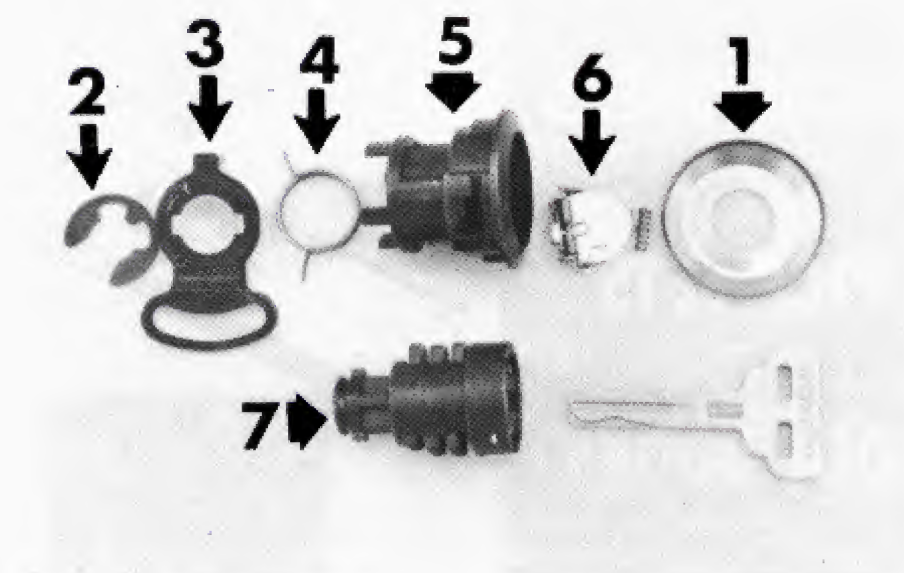
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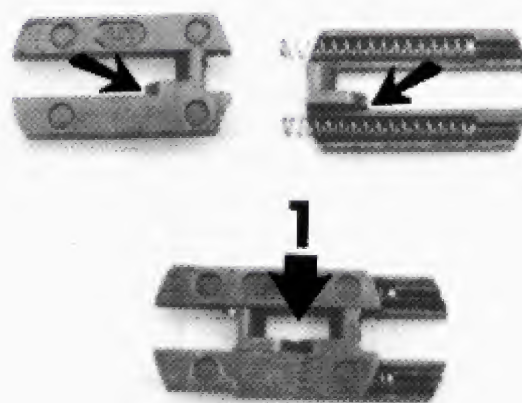
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3. Steering lock and ignition cylinder broken down for identification.



4. Door lock cylinder in assembly.



5. Unique tumblers found in all cylinders.

and letters which I assume is the code for the keys but have not been able to verify as yet.

There are eight tumblers with four on each side. Five depths are used and the tip of the key is the key stop. The ignition cylinder has all eight tumblers, the door and trunk cylinders have six tumblers and the glove compartment cylinder has four tumblers.

Photograph three is the steering lock and ignition cylinder. To remove the cylinder from the steering lock the key has to be turned 90 degrees to the 1 position. The retainer hole is on the top of the housing. Depress the retainer 1 and remove the cylinder. The face cap has to be pried off (not shown), (ASP Cap P-32-202 can be used as a replacement), then the retainer ring 6 has to be removed. The face plate 5 and interlock ring 4 can now be removed. This will expose the inter-lock plate 2 which has to be turned 90 degrees to release the cylinder plug 7 which comes out the back. The two rollers 3 are found at the entrance to the keyway.

One of the door lock cylinders (see photograph 4) is held in the door by a "C"-shaped retainer similar to ones used on GM products. The retainer is held in the door by two screws located on the edge of the door. The regular screws can be removed and some extra long (2" #10 sheet metal screws) inserted in their place, then push the "C" retainer off of the cylinder and remove the cylinder without having to remove the door paneling. The long screws will hold the retainer from falling to the bottom of the door. The face cap 1 has to be removed (ASP Cap P-32-201 can be used as a replacement) to get the plug out and also the "E" clip 2. The pawl 3 is of the fixed type, then the pawl spring 4. The plug 7 can now be removed from the cylinder housing 5. 6 is the dust cover and spring assembly.

The unique type tumblers that are used in all of the lock cylinders on the car can be seen in photograph five. The tumblers are of die cast material and are paired together with the springs located inside. When the key is inserted it goes through the middle of the tumblers as shown by the arrow 1. The other arrows point to the part that rests against the key. The tumblers all have depth numbers on them.

Space and depth key sets will be available as soon as the blanks are available. They can be purchased from the author by writing to Hawkins Locksmith Products, P.O. Box 20547, El Cajon, CA 92021. ■

Yankee Security Convention

With the unfurling of the Yankee banner over the registration desk, the 1988 Yankee Security Convention was off to an exciting start, transforming the Sheraton-Boxboro to the Sheraton-"Locksboro." New and pre-registered locksmiths lined up eagerly anticipating the upcoming classes and exhibits.

The classes began on Tuesday and continued through Friday offering a total of 41 classes on a wide range of subjects, many of which were filled to capacity, including several new, well received topics.

The students in the safe classes were bused to the premises of a prominent lock and safe company which allowed the students to have hands-on training under field conditions. Other classes offered were Basic Locksmithing, Fire/Life Safety Codes, Sentry Safe Manipulation, Basic Safe Lock Servicing, Domestic Auto, Low Power Electronics, Removable Core Cylinders, Abloy Disklock and many more.



Training seminars were well attended.

On Friday evening, the trade show opened and the exhibit hall became alive with locksmiths visiting the booths of the manufacturers and suppliers who had prepared outstanding displays of products and equipment. There were 128 booths including several new exhibitors. New products were introduced at the show and were well accepted by the attendees. With so many products to examine and exhibitors to talk with, the hours passed quickly.

The exhibits continued through

Sunday and the trade show aisles were swarmed with large crowds examining merchandise and equipment. When the show closed for the day on Saturday, the exhibitors were invited to an Exhibitors Reception which was sponsored by the Yankee Security Convention in appreciation of our exhibitors' valued support.

A cylinder assembly contest was held by one of the exhibitors, offering a color television set as a prize. Many locksmiths tried their skills to achieve the best time. Mike Minghella was successful with a time of 45.2 seconds.

At the closing ceremony, lucky ticket holders were awarded merchandise worth hundreds of dollars. The prizes were generously donated by the exhibitors and the Yankee Security Convention.

The Associated Locksmiths of America Proficiency Registration Program Test was held on Sunday and attended by 56 eager locksmiths.

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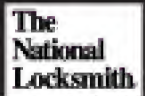
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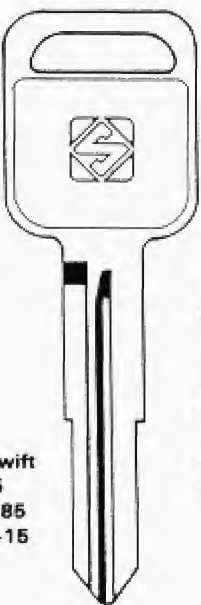
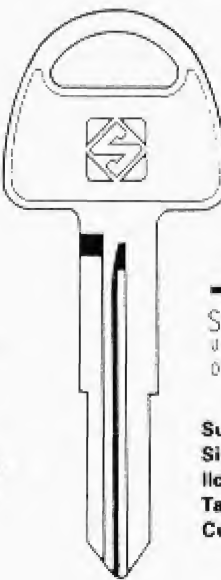
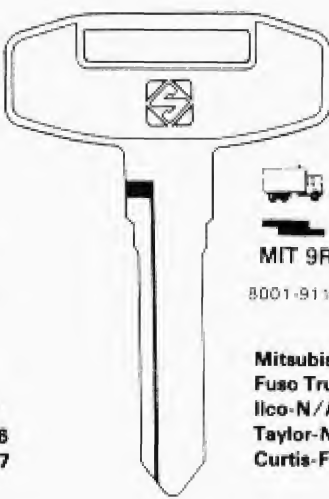
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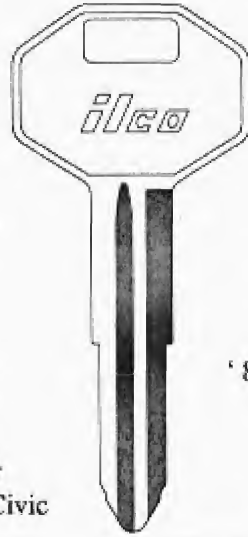
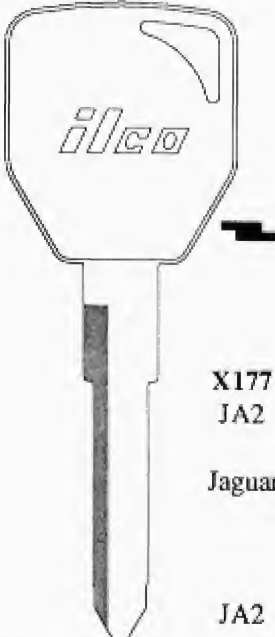
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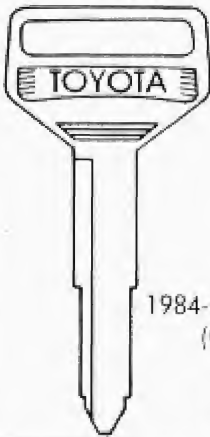
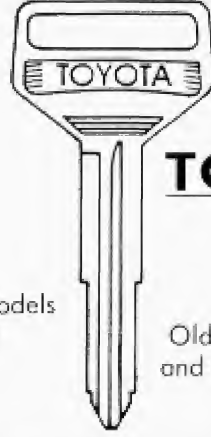
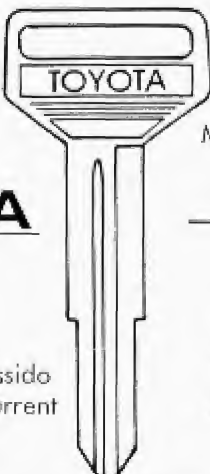
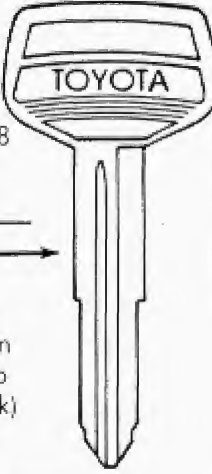
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Shop Talk

Helpful Questions and Answers

Written by *all* of the following authors: Shirl Schamp, Jack Roberts, Dave McOmie, Steve Spiwak, Dale Libby, Robert Sieveking, and Don O'Shall.

Send your locksmith questions, along with a self-addressed stamped envelope to: Shop Talk, The National Locksmith, 698 Bonded Pkwy., Streamwood, IL 60107.

A loyal reader from England has written to *Shop Talk* regarding a safe identification published in November.

Having just received the November issue of *The National Locksmith*, imagine my surprise, on turning to *Shop Talk*, and seeing the letter from Gene Lawson of Washington, about the old English safe. I was surprised because, standing in the showroom of the shop I work at is a double-doored version of the same safe.

The safe, as Gene says is made by Thomas Skidmore of Wolver Hampton, England. This is stated on a round brass nameplate which shows up as the white disc in photograph one. In the center of the nameplate is the keyhole, which is covered by a sliding cover, in the shape of a shield.

To answer Gene's question regard-



1. Thomas Skidmore safe.

ing the brass ornamentation, the two animals shown are a lion and a unicorn. This is not the safemaker's emblem or family crest. It is actually the crest of the English royal family and probably signifies that Thomas Skidmore, were approved safemakers to the royal family.

There are two inscriptions on the crest, at the top is "Honi Soit Qui Mal-y Pense" which means "Evil To Him Who Evil Thinks." The inscription on the bottom is "Dieu Et Mon Droit" which is "God and My Right."

I cannot give a close date of manufacture, but would guess that the safe is of the Victorian Era, which would put it somewhere between 1840 and 1901. Sorry I can't be more accurate than that, however, I hope this may have

enlightened Gene Lawson.

Thanks for a great magazine, even if each issue is a month old before I receive it.

Bryan Dix
England

Another subscriber (among others) has written to us regarding an answer to Rick Hargraves in the October *Shop Talk*.

In a recent issue of *The National Locksmith*, a locksmith from Arkansas asked *Shop Talk* for help, after working for 2½ hours to remove a Ford ignition (not the 84½ model).

The answer was that he had no problem and that the lock could easily be drilled. Not True! There is a disk of hardplate covering the area where you need to drill. The tool to use is the "Ford disk-out" which has been advertised in your magazine.

Dick Ingeman
California

Q: The other day, a construction foreman came into my shop to have some keys duplicated. We go to talking about the key system he used. He told me that the key he had was a master key, and that it would operate all



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the locks in a particular building, but only during the construction of the building. When the tenant entered the property using the separate key, it would disable the master from working the locks. He told me that the new key would move a set of steel balls to a new position in the lock and stop the master key from working.

The thing that I would like to know, is how this system works. Can you tell me where I can get a book on this type of system?

Thank you for all the other information found in The National Locksmith.

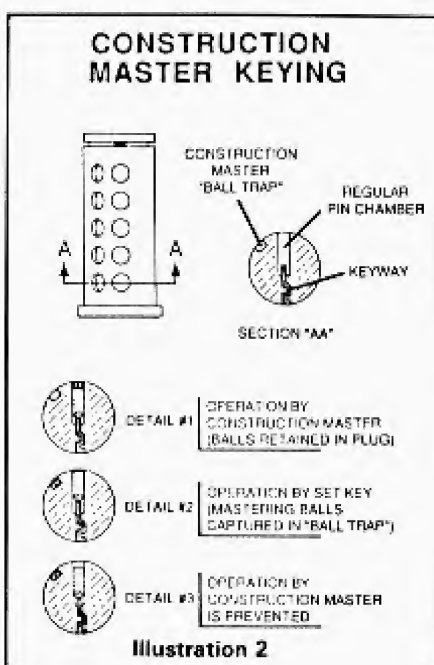
Walter Gardner
Michigan

A: In reading your request, I believe that you are speaking of a system used by Kwikset. The construction mastering is done at the factory. The locks are ordered "construction mastered," and come with all locks set to the master, and a pair of set keys for each lock. This system allows the general contractor to secure the building, but allow sub-contractors to use the construction key to enter and do their work. When the building is completed, the tenant is issued a key for his locks, which will

lock out the construction key permanently.

Illustration two shows the mechanics of this system. The lock plug has two rows of holes. These are: the regular pin chambers, and a row of trap chambers.

Section "AA" shows a cut-away of



the lock plug. You will see that the construction master "ball trap" is located to one side of the regular pin chamber and that it is only a shallow depression in the lock plug. The "ball trap" chambers are slightly smaller in diameter than the pin chambers. This prevents the top pins of the lock from entering the ball traps, locking the cylinder and trapping the key.

Detail #1 shows the action of the mastering balls. When the construction master is used in the cylinder, the master balls are in the lock plug. The key raises the balls to the shear line, and the lock plug operates as if a master wafer was in the pin chamber.

Detail #2 shows the position of the master balls after using the set key in the lock. The set key raises the mastering balls above the shear line. As the plug is turned to the right, the balls will be forced into the ball trap by the action of the top pin and spring. Once captured in the ball trap, the mastering balls can not be retrieved without disassembling the cylinder. There are most usually three master balls used in each mastered chamber. The diameter of the ball is the height of the master wafer.



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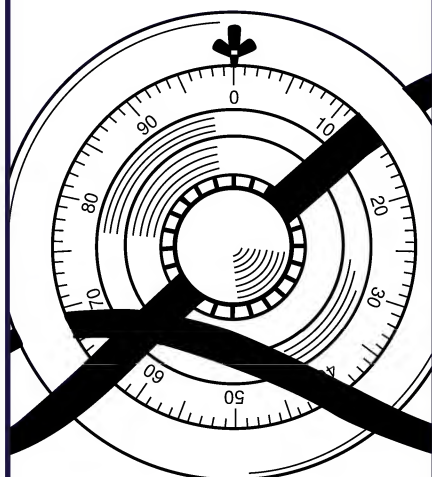
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Detail #3 illustrates the position of the bottom pin if the construction master were to be tried in the lock after the set key had been used. You will see that the bottom pin would fall below the shear line, allowing the top pin to maintain the lock in the locked condition. The construction key is permanently locked out.

This system allows a property to be rekeyed, away from a construction key by the end user, without the expense of calling a locksmith. The end user or tenant is assured that the condition trades will not have access to the property after construction is completed. 06

Q: I was recently called to open a 1987 Toyota Tercel, and spent over an hour with no success. I easily found the door handle rod, but could not locate the lock mechanism rod.

Could you please explain the procedure for opening this car?

*Maurice Poulin
Connecticut*

A: Funny you should ask! I've only encountered one and fortunately since both the customer and I were in a hurry, I was able to quickly release the sun roof, open the car and be on my way. This doesn't tell you how to open those without the sun roof. I checked with my partner and he admitted that on his only encounter with this model he had gotten lucky also. The first person who attempted an opening had knocked linkage off the pawl making it free floating. I went to my reserve source, Jay Skelton, and he again contributed his success to luck. So much for us oldtimers—Jay's son Jay (Chip) Taylor took us out to a lot and showed us how to do it.

Chip pulled the panel and showed us what the manufacturer has to stop the use of the horizontal locking rod tool. They have placed a plastic shield over the rod preventing us from grabbing the rod in the "U" shaped bend on the end of the tool. (See photograph 3.)



3. Plastic shield over the rod on an '87 Toyota Tercel.

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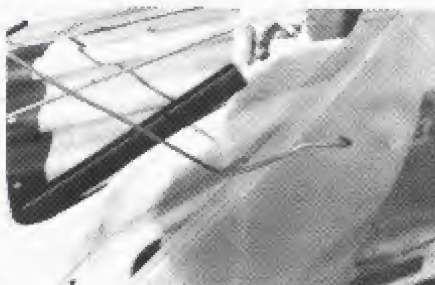
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The shield is only hooked on one end and can easily be lifted off the opposite end if you are aware of its existence. (See photograph 4.) Chip used a tool shaped like the one in photograph 5.



4. Lifting the shield off of the rod.



5. Opening tool used on the Toyota.

He first used the tool to lift the unsecured end of the shield off of the rod. If you wedge the door out from the window and use a light you will find it easier to see the shield making this portion of your job easier, now you can get under the shield and connect with the rod. (See photograph 6.) Move the rod toward the rear of the car to unlock.



6. Connecting the rod with the tool.

Another tool that you might prefer is a rod bent into a square hook on the end (see photograph 7.) The measurements are 35mm/1½" deep and 35mm/1½" wide, 45cm/18" long, 4mm/3/16" rod. Insert the tool into the



7. Square hook end tool.



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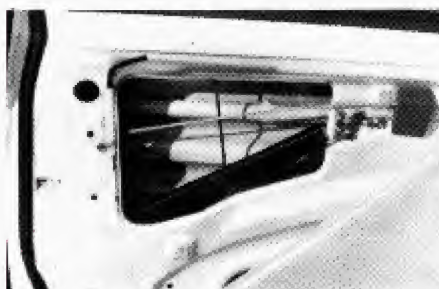
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door after first wedging the door out from the window to allow yourself a working area. Bring up under the shield only to the point where the tool has the unit cradled in the bend. Don't apply any more pressure to the tool than what is necessary to keep the tool against the unit. (See photograph 8.)



8. Cradle to unit in the bend of the tool.

Follow the unit toward the rear of the car. The tip of the tool will hit the guard that is covering the linkage connection. Lower it just enough to clear the guard and continue pushing toward the rear of the car and this will engage the bell crank unlocking the car. 02

Q: Photograph nine is what my customer believes is a "Wells Fargo Strong Box," I have no information on



9. Large iron strong box, submitted for opening tip.

the lock and the best way to open it without destroying its originality.

*Peter Goodrich
New York*

A: The picture you sent shows a large "iron" lock box with a rather large keyhole with a brass escutcheon plate. The lock is obviously a lever lock type with at least three springs held lever tumblers—possibly five, depending on the exact age of the lock and box.

This type of mechanism is rather secure if you cannot drill the container and knock the blocking bolt out of the way. The key must be inserted into the lock and turned one complete revolution, and then the handle next to the



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lock is turned to withdraw the three bolts that secure the door to the container.

One possible method of entry would be to look on the door skin for four bolt holes that secure the lock to the back of the door. If you tap the keyhole gently, or even at the back of the lock, the four (sometimes five) bolt holes will become visible. Since the top of the safe is somewhat rusty, brush the area around the lock to get a good look at the surface.

Sometimes the manufacturers used a "bondo" type substance to secure the bottom of the screws and make them undetectable to casual observance. Take a propane gas torch and play it over the surface of the door around the keyhole. This substance (whatever it is) will turn black and discolor at very low heat. Once you have found the screws, take a punch and back them out into the cabinet. Once the lock falls off the door, turn the handle and the door will open.

The only other way, without damage is to pick the lever lock. Special tools and skills are required for this, and probably more money would be spent in opening up this container and making a key for it that the container is worth. The quickest way to open this container would be to drill a 1/4" hole at about 9 o'clock from the keyhole about 6" to the left, and punch the bolt from the key lock out of the way, and then open. Repairs would have to be made to the container and to the lock itself.

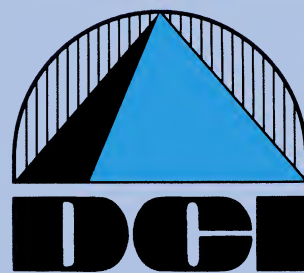
Remember, after getting the unit open with no damage, if you are not a machinist, or have the services of one, then even making the key would be a large project. If you are not up to skill level at picking ancient lever locks, then I would pass on this one, Peter. Try drilling for tapping the mounting screws if you are adventuresome. 07

Libby Safe Opening

Continued from page 75

about it.) I also stated that the reason the door locked was from them slamming it with the bolts out. They believed this, and became non-door slamming customers after that.

The total time for the opening, servicing, and carrying the tools that I did not need back and forth between my truck was about 40 minutes. Yes, I charged and received my agreed upon fee. The safe was open, the customer was better trained about how to use the safe, and everyone was happy. ■



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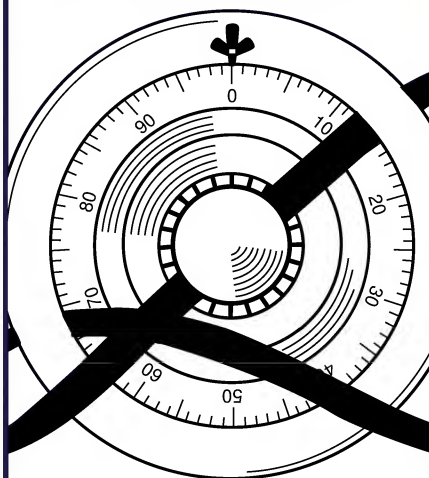
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Hirsch Electronics

Continued from page 29

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100 The National Locksmith

Letters

Continued from page 6

therefore not allowing the code pin to move. This is, of course, was why the key would not enter.

The problem, I suddenly realized, was likely to recur. What are the options to preclude this happening? In my opinion, they are: One, get permission to repin the lock to work on one key only. Two, get permission to change the master key system so that a master pin of #3 or preferably, #4 could be used.

Yes, I know there's a third option and as a professional locksmith, I don't wish to contemplate this. Of course another action I feel that is important is to try to find the offending key or keys and have them pulled out of service.

For many years I have always avoided the use of the thinnest master pins. This job has finally proved to me the prudence of that action.

Martin Koppel
California

Masterkeying

Continued from page 55

lengths and master wafers to use in this system. Kwikset locks can have brass or white metal cylinders. Because of manufacturing tolerances in the white metal plugs, you may have to increase the pin lengths shown by .003" for smooth operation in the cast white metal cylinders only.

If you cut all your keys on accurate code equipment, use the proper pins for the specific locks and use the key blanks recommended, this system works. It is also a good idea to keep the pin length charts handy for occasions where two locks of different manufacture must be keyed alike. In cases where the lockset is a National or Kwikset, and the deadbolt is a Weiser, you can use the system to put both locks on the same key. Give the customer a pair of Weiser keys and a pair of National or Kwikset keys. The Weiser keys will operate only the deadbolt, and the other keys will operate both lockset and deadbolt. This system allows for limited access through sectional or keyway mastering. (The Weiser key will not pass the National or Kwikset keyways.)

I have a number of systems that use the principles given here. I'm sure that you can apply the system to some of your accounts. Good luck. ■



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Electronic Locking

Continued from page 23

send details the the manufacturer to see if they can make an electric strike that will work properly.

Question eight: Price? I put this last because this is usually the bottom line on the selection of any product. Prices are usually reflective of the quality and/or reliability of most electric strikes. Pricing ranges from \$20 up to \$350. Obviously you can't expect the options or performance from a \$45 strike as opposed to a \$200 strike. Cycle life is a factor to consider, if an opening gets 10-20 cycles per day, I could say use a little less expensive strike, but if over this amount you should expect to choose a more expensive electric strike.

This details some of the questions I may ask you when you call JLM Wholesale. If you know most of the answers, I can almost guarantee you a smoother installation and no unwanted surprises. ■